Utopia and Dystopia

The Collected Writings of Anarcho-Transhumanism

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Introduction – The Hypocrisy of The Capitalist

The writer was taking new ideas and collecting delicious data for a novel that he was going to publish, which would increase the common library. The scientist, who continuously analyzed and combined in his chemical laboratory, explained how there, a new discovery had been made, and he was going to develop it to see the result. He had discovered an elixir of youth and beauty, real and effective. The doctor said that, following the impulses of Nature and not committing excesses, diseases were impossible, that taking Nature for example, he had convinced himself that taking Nature for example, he had convinced himself that diseases were not natural, they were the products of the artifice of man, who tried to reform creation, and of ignorance. That adopting the normal means of life there would be no diseases; and assured that alcohol, tobacco, coffee and meat were harmful, but in order not to violate organisms, and as a method of freedom and tolerance, it had been admitted that those who could not at once, get used to changing, were little to little reducing the amount of meat, coffee and tobacco, limiting themselves to taking those that demanded it, once, and then 3 a week, until the complete abstinence of all these foods and devices created by competition and poverty, which damaged organisms, vitiating entire generations – Luisa Capetillo, The Humanity of the Future (1910, Puerto Rico)

Those who have taken upon them to lay down the law of nature as a thing already searched out and understood, whether they have spoken in simple assurance or professional affectation, have therein done philosophy and the sciences great injury for as they have been successful in inducing belief, so they have been effective in quenching and stopping inquiry; and have done more harm by spoiling and putting an end to other men's efforts than good by their own - Francis Bacon (1620)

In fine, may it not be expected that the human race will be meliorated by new discoveries in the sciences and the arts, and, as an unavoidable consequence, in the means of individual and general prosperity; by farther progress in the principles of conduct, and in moral practice; and lastly, by the real improvement of our faculties, moral, intellectual and physical, which may be the result either of the improvement of the instruments which increase the power and direct the exercise of those faculties, or of the improvement of our natural organization itself? - Francis Bacon (1795)

When people hear the word transhumanism they think is a phenomenon that started in the 2000's by the rich elitist while in reality the very idea its been around before Homo Sapiens because the definition of Transhumanism is the improvement of the lives of the people by using math, science, logic and technology thus when early species of homo when the first time use stone tools 3.3 million years ago is where this philosophy started thus since the beginning Homo Sapiens are transhumanist because there was never a time that we don't use technology from spears, fire, clothes and agriculture but as a distinct philosophy it has its origins of the tradition of Anarchism mostly the most extreme type of anarchism of them all….. Anarcho-Communism; many anarcho-communist when they realize it or not are inherently anarcho-transhumanism which the first anarcho-transhumanist was also the father of modern anarchist thought William Godwin in his work Political Justice is the first anarcho-transhumanist book. Not only does promote anarcho-transhumanism but also anarcho-communism:

(Justice does not stop here at subsistence every man is entitled so far as the general stock will suffice not only to the means of being but of well-being it is unjust if one man laborer to the destruction of his health or his life that another man may abound in luxuries it is unjust if one man be deprived of leisure to cultivate his rational powers while another man contributes not a single effort to aid to common stock)

We desire freedom and both anarchism and transhumanism desire the same principles and goals like maximizing freedom, abolish oppression (hierarchy, state, money, capitalism and etc.) and want to improve the lives of the people like common access to education, medicine and basic needs (food, clean water and shelter) but hierarchy and capitalism has bring noting but educational and economic inequality since the 1980's using hyper-capitalism and privatization that reduce peoples life span during peace time like we see in Russia, East Germany and Ukraine after 1991.

People with diabetes dies because the prices of insulin are too high that they can't afford and have to go to poorer countries to survive, only 6.7% of the world have collage degree, 80% of the world's population lives in poverty (before the pandemic), 80% of US workers lives from paycheck to paycheck (before the pandemic), people die because of lack of water, food and medicine which is 20 million a year because of capitalism/hierarchy which from 2010 to 2019 will

result in 200,000,000 deaths in a period of 10 years; In the US (before the pandemic) there are 3.5 million homeless while at the same time the country has 18.5 million vacant homes (77.5% of US households are in debt) and one third of all deaths is from absolute poverty.

~5,000,000 deaths from Congo's exploits of diamonds and other minerals that our smart phones are made, 150 US workers die each day from bad working conditions were in 2015 - 4,836 workers were kill on the job. Children die from hunger in 2009 (5,256,000 deaths), Children die from hunger in 1990 to 1999 (100,000,000 deaths), Children die from preventable diseases since 9/11 (208,000,000 deaths), UNICEF, RESULTS and Bread for the World estimate 15,000,000 people die each year from preventable poverty which 11 million of them are children under the age of 5 which means capitalism kill more kindergarteners in 10 years than Soviet world did in 74 years. US where 20,000 to 40,000 people die a year because of the lack of health insurance. Companies who sale and promotes cigarette and alcohol from 1960-2010 (300,000,000 deaths), Over 50,000 homeless veterans and 500,000 non-veteran homeless in the United States (before the pandemic), 18,000,000 people die each year due to systemic poverty, 0.01% poverty-murder over 400 million people since 1995; 9.1 million starve each year and increasing because of climate change, 820 million people lack the food to live a healthy live, 3.5 million people die from lack of water treatment and all this because capitalism don't find it profitable to give these treatment for free in Africa and Asia (which most starvation happens) which the total death toll is 50 times higher than the holocaust.

Let's not forget the many wars that made profit from the deaths of untold millions like Lockheed Martin ($40.8B), Boeing ($29.5B), Raytheon ($22.9B), Bae System ($22.8B), Northrop Grumman ($21.4B), General Dynamics ($19.2B), Airbus Group ($12.5B) and L3 Communications ($8.9B) and the reason we have a global pandemic that we haven't seen since 1918 is because of capitalism when Richard Burr (also Boeing) was aware of the virus very early on that the Chinese government discover the virus when it was still a local problem and tell him to close the airport because there is a unknow virus but instead he hid this information that can prevent those many deaths and only help himself to make profit and all those deaths was because he did not want to lose money/profit.

50 billion dollars are stolen through wage theft in the US (before the pandemic), the US winning 9 trillion dollars by killing innocents (Afghanistan Papers), CEO earns 774 times as minimum wage workers, 40 percent of Americans now make less than 1968 minimum wage, the FBI confirms that the root cause of crime and other injustices is cause by capitalism (economic inequality), only 0.5% of the world's population have more than a million dollars yet own 45% of the world's wealth or the top 0.1% own 90% of the world's wealth (Jeff Bezos and Bill Gates).

This is why anarcho-communism/transhumanism is the only way to achieve a better society to harmonize nature because evidence points that the root cause of all our societal problems are cause by hierarchy because before hierarchy was establish violence was virtually nonexistent that many indigenous that still functions under anarcho-communism like the San People, violence is almost unknow to them that we only have one case of mass violence before hierarchy was establish (13,000 years ago and the cause was racism) but when hierarchy was establish 12,000 years ago it shows a increase of mass violence by many archeological sites, early inequality when agriculture

was establish, women have less rights and early worship of male gods 7,000 years ago and the first kings 6,000 years ago (early theocratic male focus hierarchy).

We are the only apes that have hierarchy and its artificial unlike Chimps, Gorillas, Orangutans and Gibbons have no hierarchy and evidence shows that once hierarchy is establish violence and competition quickly takes its place and when some Chimps started to establish hierarchy and creates borders may have been the dawn of warfare as we speak by observing chimps who are more aggressive create borders and these are far more possessive of resources (early sings of greed) with early sings of property and ownership cause chimp warfare which the moment hierarchy, competition and private property is establish it quickly cause war by creating artificial scarcity (despite of the huge land they live) fighting resources and developing warlike behavior.

This is why capitalism/hierarchy fails when 150,000,000 children suffer malnutrition, two out of every three children suffer from malnutrition and one out of every sixth dies before the age of five, 50% of the world's population struggles for basic needs and studies show that money and hierarchy brings more destructive behavior like an increase of unethical behavior, decrease empathy, sexual aggression, increase antisocial behavior, feeling less emotional and physical pain, it gives more stress and less likely to trust people and all this happen by people who are higher in the hierarchy while in the lower has higher chances of mental health issues of constant fear of losing jobs, losing welfare, housing among the poor, increase of stress because of bosses and the hierarchical system that leads many into suicide and another study shown that children functions this way and using hierarchical system bring less satisfactory to the children and offering rewards and competition has reduce peoples creativity and effectivity in work while people with no reward thus no competition have better creativity and does more effective work. Studies show that children under a competitive hierarchical environment among two groups shows that they become more hostile and violent while co-operation and eliminate competition/hierarchy shows better relationships, less violence, more trust among individuals and better effective work and it has shown that having too much power like entrepreneurs are more likely to become sociopaths, have less empathy and more likely to use immoral actions to keep there power (top of the hierarchy).

We have the technology to completely automate almost all work and only need 3 hour work days, replace all oil to natural energy both green and nuclear energy (out of all natural energy sources nuclear energy is actually the safest and produce the least amount of pollution compare to other green energy).

As long hierarchy, state and capitalism exist injustice, crime, economic inequality, educational inequality, the rich has a higher life expectancy than the poor (there is a 25 year gap), the rich has better access to medicine and the rich has one thing that many people lack and many middle class people who are struggling to be rich needs and that is freedom when the rich is having a glimpse of anarchist life were they have so much money they don't have any financial fear like could they afford food, medical bills, lack of stress because there basic needs are meet and etc. which under anarcho-communism this should be apply to all in a stateless, moneyless, horizontal and borderless global civilization and the cost to end world hunger, give everyone clean water and halt global warming is 340 billion dollars a year (10 billion for the water and 30 for food) which is less than half that the current US military spending which is over 700 billion dollars.

It shows that anarcho-communism and Communalism (Murray Bookchin) is the best alternative that we see in anarchist-communist Spain (1936-1939) which was the most productive, most technologically advance and least violent (including no crime) faction in Spain with the population of 8 million people living in a utopia in both theory and practice and took the combine might of the Republicans (non-anarchist socialist), Stalinist and Fascist (Nationalist Franco and Catholic Church) join forces to destroyed the only place in the world that was truly free and democratic.

The anarchist-transhumanist/communist are also green anarchist (Social Ecology and Dialectical Naturalism) want to improve not only the lives of the people but also animals and the planet when the US military is the biggest polluter in the world, the US Department of Defense is the largest polluter in the world producing more hazardous waste than the 5 largest US chemical companies combined and use 144 million barrels of oil per year and the environmental destructive nature of capitalism and hierarchy that in September 9, 2019 has accumulated 2,783,726 Hiroshima atomic bombs of heat since 1998 or 2.5 million US students are force into prostitution in order to pay there debt (the result of the 2008 crash).

Even Steven Pinker in his book The Better Angels of Our Nature accidentally shows that anarchism is better when the percentage of deaths in warfare he has no data before hierarchy was establish (Cobero, Niger, 14,000-6,200 BCE) and only evidence of violence started after hierarchy was establish (Nubia, nr. Site 117, 12,000-10,000 BCE) and the 21 most violent periods of history (which I will show in order) only he can find 2 areas where the countries adopts leftist views (Maoism and Stalinism) while the rest are either Monarchism or Fascism which hierarchy, competition, private property, capitalism, Hobbes Leviathan (which is absolute monarchy which Steve defended heavily in the book) and other things that he promotes as part of his Neoliberalism:

1. An Lushan Revolt (The Taoist anarchist call the Yellow Turban ended this period)
2. Mongol Conquest (kill 10% of the world's population)
3. Mideast Slave Trade (this is where capitalism was born in the 9th century)
4. Fall of the Ming Dynasty
5. Fall of Rome
6. Timur Lenk (kill 5% of the world's population in the name of Islam)
7. Annihilation of the American Indians (10% of the world's population when include No. 8)
8. Atlantic Slave Trade (this is where Capitalism/Christianity got their global power by force)
9. Second World War (kill 3% of the world's population and the USSR defeated the Nazis)
10. Taiping Rebellion (kill 2.1% of the world's population in the name of Christianity)
11. Mao Zedong
12. British India (has the similar death toll as Maoist China and was control by a company)
13. Thirty Years' War (kill 1.4% of the world's population)
14. Russia's Time of Troubles
15. Joseph Stalin
16. First World War (kill 1.7% of the world's population)
17. French Wars of Religion
18. Congo Free States (Anarcho-Capitalism)
19. Napoleonic Wars

20. Russian Civil War
21. Chinese Civil War

These are the most violent periods in history and all of them have strict hierarchy and No. 3, 7, 8, 9, 10, 11 (State Capitalism), 12, 15 (State Capitalism), 16, 18, 19, 20 and 21 have capitalism. This is why before 12,000 years ago humans where anarcho-communist it is in our nature that even the first intellectuals and entertainers promoted socialism like Aristophanes (the father of comedy) in his words "I shall begin by making land, money, everything that is private property, common to all" or Plato in his work Republic is the oldest literary example of promoting socialism (despite the work gave foundations to modern authoritarianism and totalitarianism) when he said "It is impossible that those who become very rich become also good" or Aristotle share the same politics (with obvious disagreements on certain details) laid the ground work for social warfare programs that socialism help adopt.

Thus to have the enlightenment figure that Steve wants (adopting Humanism, Reason, Progress and Science) the people who fit in his criteria are Peter Kropotkin, Murray Bookchin and Karl Marx (especially his more anarchist tendencies from 1871-1883) which he will not admit.

Thomas Piketty has shown in his work Capital and Ideology that there is a increase of inequality since the 1970's during the rise of neoliberalism and the conservative revolution of Margaret Thatcher and Ronald Reagan like educational inequality, politicization of inequality (Brazil), rise of nationalism, promoting cut throat competition in the European Union cause economic crisis from countries that are already poor, Center-Left and Liberals ignore less educational voter and focused on higher educated people which are the minority and high concentration of wealth that cause economic inequality that he haven't seen since the Pure Raw Advance Late Laissez-faire Capitalism where the free market has no restraints in the 19th century Britain, the US Gilded age, Chile under Pinochet, Medieval Iceland and Banana Republics (Libertarian/Anarcho-Capitalism).

Yet the biggest thing about todays system of hierarchy and capitalism is there hypocrisy and that is they will say that socialism (the Leninism of Central Planning State Capitalism that the Soviet world has use) does not work yet the worlds functions under that principle thus in the long run Lenin has won were every country in the world and every massive corporations like Alphabet (Google), Apple, Amazon, Facebook, Wal-Mart and etc. are using the Leninist State Capitalism Central Plan economy using Big Data, Colossal Logistics and Algorithm that companies like Amazon are master planners and kill the myth of the free market with billions of gigabytes of customers data which they can predict with scary accuracy to what costumers wants that the demands plans for everything from warehouse siting and product organization to minimizing the costs of delivering customers' packages and shortening delivery routes using advance mathematical logic to achieve things that looks mystical with a 95% precision to there Leninist Central Planning and a recommendation system (based on the activity of people in todays companies which debunks Libertarian/Anarcho-Capitalism by the existence of big data) which has been historically been practice by the Soviet world before the information age at the expense of the preservation of the few elites and the employees are under paid, horrible working conditions (which cause death or suicide), stress, lack of freedom, no democracy, union busting, surveillance and are force to overwork to the same speed has machines that are design to surpass them and

these corporations have there big data and algorithm hidden from the public which privatization is prioritize over democratic control from the workers self-management, unions and socialization like in the words of Leigh Philips and Michael Rozworski:

(The time has come for concrete, rather than abstract, proposals for the democratization of global governance, economics and planning, including around issues of geolocation, social networking, search, data mining, machine learning and ubiquitous computing. Because here's the thing: the big data cat is out of the bag. Both the ubiquitous surveillance of corporations and the ubiquitous surveillance of the state are already here. We need a third option—one that goes beyond the state-versus-market dichotomy).

Leninist State Capitalist Central Plan economy is the global economy but when it comes to computers when every country and corporation use central control IT and recently AI you have to thank to the socialist to make it possible because the internet functions under anarcho-communism, the concept of the economy control by computers and digital economy was started by Chile (Project Cybersyn) during the 1970's 20 years before anybody else but was destroyed by Pinochet before we can see big results but the small results were positive, the Internet was design by Viktor Glushkov when he made the blue prints for the computerized planning system (1950's to 1960's), Invention of the LED in 1927, first programmable computer MESM in 1950, first Soviet and European electronic computers the BESM in 1951 and MESM in 1958, first computer with ternary logic which is faster and more reliable than the binary system in 1958 and model development Setun-70 in 1970 which further reinforced the aspect of programming, improving to by a factor 5 software development over other architectures time, first personal computer in 1965, first computer-aided education system in history, first superscalar computer (processor microarchitecture capable of executing more than one instruction per clock cycle) in 1970 which the use of this equipment in 1978, ten years before commercial applications appeared in the West, the Soviet Union developed its missile systems and nuclear and space programs, the USSR made the foundation of cybernetics, the invention of the FAR file manager, RAR and WinRAR format file; The first mobile phone in 1955, which was copied by the US in 1970 and Finland in 1980 which gave him a civil use with Nokia.

It shows that the Soviet world shows that central planning give them technological advantage and are always either 10 or 30 years ahead than anybody else (remember with early computers were the legitimization has not happen or just establish by very few institutions), they achieve space travel a decade before anybody else, they made robots before anybody else including remote control robots (tanks, helicopters and space vehicles) and the quality of life for the people in the Soviet world was equal or better (depending the area) than the western world in the span of 30 years while the capitalist countries have a 200 year head start (technically capitalism was born in the 9th century during the Islamic Slave Trade were the first evidence of the accumulation of capital).

This is why we must adopt anarcho-communism especially starting with Silicon Valley were the most technological advance city in the world rely on undemocratic oppression on the workers, economic inequality so extreme that only the elite lives there, avoiding taxes, illegal surveillance, using our data without consent for profit, manipulate news to suppress radical views and promote

fascist and monarchist views. Exploit the people of the Congo to have our tech at the expense of there lives because the tech giants subscribe to the pseudoscience of Social Darwinism, Survival of the Fitness, Anarcho-Capitalism and Libertarian Capitalism of Ayn Rand, Murray Rothbard and Austrian/Chicago Schools.

Creating a environment of fear, dangerous environment (which these CEO's has openly supported), insane competition which cause constant back stabbing and distrust among workers (accept the ones of the top of the hierarchy), workers are disposable and overworking that many committed suicide for the preservation of the 0.001%, these companies discourage workers to have friendly relations among each other (they were not allow to talk each other), using slavery in Africa for minerals and apartheid in the works place (not by race put status) with studies shows the psychology of the ultra-rich are immoral, lazy sociopathic and believe they are god-kings like the god-kings of Mesopotamia, Pharaohs of Egypt, Vedic kings of India, priest-king of China and proto-kings of the Balkans which gave birth to male gods.

Lastly the reason that the rich are rich is because they are rich thanks to there privilege family, already have a wealthy family (born with a silver spoon), have access to the best schools, universities and business jobs that already teach them how to get rich because of its status and have more free time unlike the lower and higher-middle class who lack all these opportunities and the majority of the ultra-rich are men, white and the majority already come from ultra-rich families. While the richest black man/women has 1/5 amount the wealth than the least richest billionaire (not black), there are no black billionaires and this is why the concept of billionaires/millionaires should be illegal. And no Anarcho-Capitalism can't fix it despite is a oxymoron and bring modern Feudalism but only example of anarcho-capitalist is Medieval Iceland the system failed after 5 families bought out all of the governorships and the system devolved into a plutocratic aristocracy.

While the rich makes this propaganda that the poor waste there money while the rich which has the power to end all our problems (hunger, clean water, climate change, shelter, free education and post-scarcity) where they can use all that technology to completely socialize/democratize to adopt a plant base diet which only requires 1/12 of land we use, prevent water wars using plant base diet (which the rich can use that money so that diet become available to all and the Vice President Harris admitted they cause wars over oil and now they are going to start wars over water), the capitalist are trying to monetize water and peoples suffering who lack access or when India have the largest protest in history the capitalist are preventing free vaccine distribution in order to prevent any leftist movement and enrich the rich, the rich have commodified water to speculate of the future of water in the stock market they are betting on droughts while people suffer, we need to stop this the US know how to fix it yet cares about profit over life the government did a study a found the cost to end homelessness is 20 billion dollars not a year just spent does 20 billion once and they ended this crisis.

Of Health, and the Prolongation of Human Life – William Godwin (1793)

The question respecting population is, in some degree, connected, with the subject of health and longevity. It may therefore be allowed us, to make use of this occasion, for indulging in certain speculations upon this article. What follows, must be considered, as eminently a deviation into the

land of conjecture. If it be false, it leaves the system to which it is appended, in all sound reason, as impregnable as ever.

Let us then, in this place, return to the sublime conjecture of Franklin, a man habitually conversant with the system of the external universe, and by no means propense to extravagant speculations, that "mind will one day become omnipotent over matter." The sense which he annexed to this expression, seems to have related to the improvements of human invention, in relation to machines and the compendium of labour. But, if the power of intellect can be established over all other matter, are we not inevitably led to ask, why not over the matter of our own bodies? If over matter at however great a distance, why not over matter which, ignorant as we may be of the tie that connects it with the thinking principle, we seem always to carry about with us, and which is our medium of communication with the external universe?

The different cases in which thought modifies the structure and members of the human body, are obvious to all. First, they are modified by our voluntary thoughts or design. We desire to stretch out our hand, and it is stretched out. We perform a thousand operations of the same species every day, and their familiarity annihilates the wonder. They are not in themselves less wonderful, than any of those modifications we are least accustomed to conceive. Secondly, mind modifies body involutarily. To omit, for the present, what has been offered upon this sysbject by way of hypothesis and inference, there are many instances in which this fact presents itself in the most unequivocal manner. Has not a sudden piece of good news been frequently found to dissipate a corporal indisposition? Is it not still more usual for mental impressions to produce indisposition, and even what is called a broken heart? And shall we believe that that which is so powerful in mischief, can be altogether impotent for happiness? How common is the remark, that those accidents, which are to the indolent a source of disease, are forgotten and extirpated in the busy and active? I walk twenty miles in an indolent and half determined temper, and am extermely fatigued. I walk twenty miles, full of ardour, and with a motive that engrosses my soul, and I arrive as fresh and alert as when I began my journey. Emotion, excited by some unexpected word, by a letter that is delivered to us, occasions the most extraordinary revolutions in our frame, accelerates the circulation, causes the heart to palpitate, the tongue to refuse its office, and has been known to occassion death by extreme anguish or extreme joy. There is nothing of which the physician is more frequently aware, than of the power of the mind in assisting or retarding convalesence.

Why is it that a mature man loses that elasticity of limb, which characterises the heedless gaiety of youth? The origin of this appears to be, that he desists from youthful habits. He assumes an air of dignity, incompatible with the lightness of childish sallies. He is visited and vexed with the cares that rise out of our mistaken institutions, and his heart is no longer satisfied and gay. His limbs become stiff, unwieldy and aukward. This is the forerunner of old age and of death.

A habit peculiarly fabourable to corporeal vigour, is chearfulness. Every time that our mind becomes morbid, vacant and melancholy, our external frame falls into disorder. Listlessness of thought is the brother of death. But chearfulness gives new elasticity to our limbs, and circulation to our juices. Nothing can long be stagnant in the frame of him, whose heart is tranquil, and his imagination active.

A further requisite in the case of which we treat, is clear and distinct apprehension. Disease seems perhaps in all instances to be the concomitant of confusion. When reason resigns the helm, and our ideas fluctuate without order or direction, we sleep. Delirium and insanity are of the same nature. Fainting appears principally to consist in a relaxation of intelllect, so that the ideas seem to mix in painful disorder, and nothing is distinquished. He that continues to act, or is led to a renewal of action with prespicuity and decision, is almost inevitably a man in health.

The surest source of chearfulness is benevolence. To a youthful mind, while every thing strikes with its novelty, the individual situation must be peculiarly unfortunate, if gaiety of throught be not produced, or, when interrupted, do not speedily return with its healing virtue. But novelty is a fading charm, and perpetually decreases. Hence the approach of inanity and listlessness. After we haev made a certain round, life delights no more. A deathlike apathy invades us. Thus the aged are generally cold and indifferent; nothing interests their attention, or rouses their sluggishness. How should it be otherwise? The objects of human pursuit are commonly frigid and contemptible, and the mistake comes at last to be detected. But virtue is a charm that never fades. The mind that overflows with kindenss and symptahy, will always be chearful. The man who is perpetually busied in contemplations of public good, can scarecely be inactive. Add to this, that a benevolent temper is peculiarly irreconcileable with those sentiments of anxiety, discontent, rage, revenge and despair, which so powerfully corrode the frame, and hourly consign their miserable victims to an untimely grave.

Thus far we have discoursed of a negative power which, if sufficiently exercised, would, it is to be presumed, eminently tend to the prolongation of human life. But there is a power of another description, which seems entitled to our attention in this respect. We have frequently had occassion to point out the distinction between our voluntary and involuntary motions. We have seen that they are continually running into each other; our involuntary motions gradually becoming subject to the power of volition, and our voluntary motions degenerating into involuntary. We concluded in an early part of this work, and that, as it should seem, with sufficient reason, that the true perfection of man was to attain, as nearly as possible, to the perfectly voluntary state; that we ought to be, upon all occasions, prepared to render a reason of our actions; and should remove ourselves to the furthest distance, from the state of mere inanimate machines, acted upon by causes of which they have no understanding.

Our involuntary motions are frequently found gradually to become subject to the power of volition. It seems impossible to set limits to this species of metamorphosis. Its reality cannot be questioned, when we consider that every motion of the human frame was originally involuntary. Is it not then highly probable, in the process of human improvement, that we may finally obtain an empire over every articulation of our frame? The circulation of the blood is a motion, in our present state, eminently involuntary. Yet nothing is more obvious than that certain thoughts, and states of the thinking faculty, are calculated to affect this process. Reasons have been adduced which seem to lead to an opinion, that thought and animal motion are, in all cases, to be considered as antecedcent and consequent. We can now perhaps by an effort of the mind correct certain commencing irregularities of the system, and forbid, in circumstances where those phenomena would otherwise

appear, the heart to palpitate, and the limbs to tremble. The voluntary power of some men over their animal frame, is found to extend to various articles, in which other men are impotent.

A further probability will be reflected upon these conjectures, if we recollect the picture which was formerly exhibited, of the rapidity of the succession of ideas. If we can have a series of three hundred and twenty ideas in a second of time, why should it be supposed that we may not hereafter arrive at the skill of carrying number of contemporaneous processes without disorder?

Nothing can be more irreconcilable to analogy, than to conclude, because a certain species of power is beyond the train of our present observations, that it is beyond the limits of the human mind. We talk familiarly indeed of the extent of our faculties; and our vanity prompts us to suppose that we have reached the goal of human capacity. But there is little plausibility in so arrogant an assumption. If it could have been told to the savage inhabitants of Europe in the times of Theseus and Achilles that man was capable of predicting eclipses and weighing the air, of reducing to settled rules the phenomena of nature so that no prodigies should remain, and of measuring the distance and size of the heavenly bodies, this would not have appeared to them less incredible than if we had told them of the possibility of maintaining the human body in perpetual youth and vigour. But we have not only this analogy, showing that the discovery in question forms, as it were, a regular branch of the acquisitions that belong to an intellectual nature; but, in addition to this, we seem to have a glimpse of the manner in which the acquisition will be secured.

One remark may be proper in this place. If the remedies here proposed tend to a total extirpation of the infirmities of our nature, then, though we should not be able to promise them an early or complete success, we may probably find them of some utility. They may contribute to prolong our vigour, if not to immortalize it, and, which is of more consequence, to make us live while we live. Every time the mind is invaded with anguish and gloom, the frame becomes disordered. Every time langour and indifference creep upon us, our functions fall into decay. In proportion as we cultivate fortitude and equanimity, our circulations will be cheerful. In proportion as we cultivate a kind and benevolent propensity, we may be secure of finding something to interest and engage us.

Medicine may reasonably be stated to consist of two branches, animal and intellectual. The latter of these has been infinitely too much neglected. It cannot be employed to the purposes of a profession; or, where it has been incidentally so employed, it has been artificially and indirectly, not in an open and avowed manner. "Herein the patient must minister to himself." It would no doubt be of extreme moment to us to be thoroughly acquainted with the power of motives, perseverance, and what is called resolution, in this respect.

The sum of the arguments which have been here offered, amounts to a species of presumption, that the term of human life may be prolonged, and that by the immediate operation of intellect, beyond any limits which we are able to assign. It would be idle to talk of the absolute immortality of man. Eternity and immortality are phrases to which it is impossible for us to annex any distinct ideas, and the more we attempt to explain them, the more we shall find ourselves involved in contradiction.

To apply these remarks to the subject of population. One tendency of a cultivated and virtuous mind is to diminish our eagerness for the gratifications of the senses. They please at present by their novelty, that is, because we know not how to estimate them. They decay in the decline of life, indirectly because the system refuses them, but directly and principally because they no longer excite the ardent of the mind. The gratifications of sense please at present by their imposture. We soon learn to despise the mere animal function, which, apart from the delusions of intellect, would be nearly the same in all cases; and to value it only as it happens to be relieved by personal charms or mental excellence.

The men therefore whom we are supposing to exist, when the earth shall refuse itself to a more extended population, will probablv cease to propagate. The whole will be a people of men, and not of children. Generation will not succeed generation, nor truth have, in a certain degree, to recommence her career every thirty years. Other improvements may be expected to keep pace with those of health and longevity. There will be no war, no crimes, no administration of justice, as it is called, and no government. Beside this, there will be neither disease, anguish, melancholy, nor resentment. Every man will seek, with ineffable ardour, the good of all. Mind will be active and eager, yet never disappointed. Men will see the progressive advancemcent of virtue and good, and feel that, if things occasionally happen contrary to their hopes, the miscarriage itself was a necessary part of that progress. They will know that they are members of the chain, that each has his several utility, and they will not feel indifferent to that utility. They will be eager to enquire into the good that already exists, the means by which it was produced, and the greater good that is yet in store. They will never want motives for exertion; for that benefit which a man thoroughly understands and earnestly loves, he cannot refrain from endeavouring to promote.

Before we dismiss this subject it is proper once again to remind the reader, that the substance of this appendix is given only as matter of probable conjecture, and that the leading argument of this division of the work is altogether independent of its truth or falsehood.

The Sun, March 04, 1894 – An Interview with Voltairine de Cleyre

Offspring of a French communist and a New England Puritan Woman, She Was Born to Enthusiasm and Hobbies-Rabid in her Anarchism, and Believes in Unhappiness as Part of the Highest Ideal Life

Picture to yourself a tall woman – her age may be 26 years-with an oval face, pale as a student's deep-set blue eyes, teeth white and even, a countenance grave far beyond her years save when a slow smile brightens it: picture this woman sitting opposite you, expounding calmly and clearly the doctrine of anarchy, and you are in the presence of Voltairine de Cleyre.

To the readers of newspapers the name is not a familiar one. Even among the Anarchists-that is, among the rank and file of those who attend the Anarchist meetings and listen in open-mouthed admiration to what the leaders have to say-it is not widely known. It is the name, however, of a young woman who is probably the cleverest Anarchist in this country, who, were she to work in that ostentatious fashion which seems to take well with Anarchists, might some day become their recognized leader.

A few months ago there was a meeting of Anarchists in this city to denounce the arrest and conviction of Emma Goldman, and among the speakers was Miss Voltairine de Cleyre. So eloquent a plea and so clever a speech as hers was had never been heard at a New York Anarchist meeting before.

“I have not a tongue of fire as Emma Goldman has,” she said. “I cannot stir the people. I must speak in my own cold way otherwise I would not be allowed to speak at all. But if I had the power,

Were I Brutus

And Brutus Anthony, there were an Antony

Would ruffle up your spirits, and put a tongue

In every wound of Caesar’s that should move

The stones of Rome to rise and mutiny.

“If therefore, I do not give you the advice which Emma Goldman gave you, let not the authorities supposed it is because I have any more respect for their Constitution and their law than she had or that I regard them as being right in the matter.”

The influence which such a speaker could have upon an inflammable-minded audience can easily be imagined. THE SUN sent a reporter to find this young woman and learn something of her history, but she had disappeared as suddenly and seemingly, as mysteriously as she had turned up. And although, as it now appears, she made no attempt to conceal herself, yet no one to whom THE SUN reporter applied during those two months could tell where she lived.

The other day, however, one of the Assistance District Attorneys of this county received a pamphlet, of which the title page read as follows “In Defence of Emma Goldman and the Right of Expropriation. By Voltairine de Cleyre. 3,515 Wallace street. Philadelphia.” The next day THE SUN representative called upon Miss de Cleyre.

A little room on the second floor of a typical Philadelphia cottage, filled with books and the odor of books, and ornamented with many strange shells and dried starfishes, is Miss de Cleyre’s study. “Tell me what books you read and I will tell you what you are,” some sage one said. A glance at Miss de Cleyre’s library tells more eloquently than an elaborate essay could what Miss de Cleyre is.

Proudhon, Karl Marx, Ferdinand Lassalle, Adam Smith, Aristotle, Spinoza, and Conte stand shoulder to shoulder upon the shelves of her study, a silent index to her character.

At a writing table, upon which stood a portrait of Victor Hugo facing a glass globe full of water, in which little goldfishes were swimming, sat Miss de Cleyre.

“So you have come all the way from New York to interview me,” she said. “Now what can I say to you?”

Indeed, when he sat face to face with this young woman, and saw that she had bright eyes and that she was comely and young and very womanly in her appearance and her manner, the reporter

found it difficult to concentrate his mind upon the fact that here was an Anarchist of the most radical type.

“Supposing you begin with yourself.”

She smiled-the slow, calm smile of a woman who does not smile often.

“Born in the year so-and-so, which of course you do not want to know-Voltairine de Cleyre is one of the most rabid Anarchists of this country.” That’s the way your story will begin. I’ll probably start off like that too, if you like, is that what you want? I see by your face that you are disgusted. Don’t mind telling me if you are, I like people who are outspoken, even if what they say is not flattering.”

“How did you ever take to anarchism?”

“Well, I supposed it was born in me, although I did not know of it until certain circumstances brought it out.”

She spoke very slowly, selecting each word with care, and concentrating her attention upon her answer as though she feared to make a misstatement.

“My father was a French Communist and my mother a New England Puritan, and you might know that the offspring of such a union was sure to become enthusiastic over something or other. I was born in Michigan, where I went to school. Even as a schoolgirl I devoted considerable attention to some of the subjects which interest me now, and although I had but ill-defined ideas, they were the foundation for my subsequent studies.

“When I left college I was a free thinker, and I delivered a series of lectures upon free thought. I had always been interested in the relation of the sexes, and after leaving college I devoted a great deal of thought to the subject. About six years ago, while I was delivering a lecture on free thought in Linesville, Pa., I met a Chicago lawyer whose name was C.S. Darrow. He attended one of my lectures and I became acquainted with him. A short time after that I heard him lecture on socialism, and in fifteen minutes I was a socialist.

“I remained a Socialist for about six weeks, and then I found the true solution of the social problem. I became an Anarchist. It was customary at our meetings to have short discussions in which anyone in the audience could join if he wanted. Among the regular visitors there was a jeweler named Morzersky, who was a communistic Anarchist. He frequently spoke at these meetings in favor of anarchism, using the Socratic method in his reasoning.

He took advantage of my own arguments to push me into a corner and make me admit that I was all wrong. I had many long talks with him, in which I stood up for socialism and he for anarchism-authority versus individual liberty. He could never convince me of the truth of communism, but what he told me induced me to study anarchism as a science. I read Stephen Pearl Andrew’s ‘Science of Society,” Lysander Spooner’s letter to Grover Cleveland, and Proudhon’s, “What is Property?” and gradually I became an Anarchist.”

“When did you begin to lecture?”

“I have never been what is commonly called an agitator, not that I have not been wiling to become one, but because I have not the ability. To become an agitator one must be able to speak without much preparation. My speeches must always be prepared, and it takes me quite a long while to prepare them. I don’t care much for extemporaneous speakers. Their speeches are disconnected and badly arranged as a rule.

“I have not lectured often on anarchism although my anarchist ideas have influenced my views on every other subject. I look at everything through anarchistic spectacles.”

“Upon what other subjects do you lecture?”

“I have lectured on ethics, although of course my anarchism is as much a system of ethics as it is a system of economy; on religion, in which I am a free thinker, on the race question in relation to the development of society and on the woman question. I have delivered more lectures on the woman question than anything else.”

“And what are your ideas on that question?”

Miss de Cleyre smoothed her dress, placed her hands on her hips and answered with considerable animation:

“I believe that woman is the equal of man and should have all of the privileges which he receives. I do not stop to fuss with the question of franchise. I do not believe in the ballot either for men or for women. I believe in the equality of woman as a worker, a thinker, and as an individual. She should have the right to own property and not be interfered with by her own husband.”

She hesitated for a moment and then, leaning slightly forward with her hands-clasped in her lap, her face animated she went on speaking quickly and with considerable fire:

“Yes, the earth is a prison, the marriage bed is a cell, women are the prisoners and you men are the keepers. A man’s wife is his property. His will is her law. She has no rights. Her mind must be subservient to his, her body is his, her soul, if she has a soul, is his. The wedding ceremony makes her his slave. A prostitute is better off than she. She must submit to her husband whether or no.

“And I am opposed to this. I do not think it is right. I believe the wife should have exactly the same rights as her husband. Women should enjoy themselves in life as men do. A woman should be as free to dispose of her property and her children as her husband is.

“But oh! they are ignorant. They are all ignorant, ignorant, ignorant. they have not the intelligence to be unhappy. They do not feel their own misery.”

“And do you think that people who have sense are unhappy.”

“Yes. The more sense they have the unhappier they are. But then I do not think that happiness is the object of life. I do not think that we should devote ourselves to being happy.”

“What do you think is the object of life?”

“Progress. The development of the human race. I want people to know more. If in their search for knowledge they meet with unhappiness, it is a good thing. If they meet with unhappiness, it is their

fate. They cannot escape it. It is true I am a pessimist, but I do not think we were meant to be happy. We are merely the cogs in the wheel of a mighty evolution, which moves around slowly and steadily until its work is over."

"And what will happen then?"

"Ah, that is the great goal of the race. What it will be, no one can tell. As the human race progresses and becomes perfect I think it susceptibility to unhappiness will become keener. Conditions that do not exist to-day, or, if they did exist, we would look upon the indifference, will add to the unhappiness of the race in the future. As I said before, the progress that I believe in, is not toward a happier life. It it is towards a perfect, an ideal life, in which men and women will be as gods, with a gods power to enjoy and to suffer.

It may be that this progress will merely be a race for unhappiness and the sufferings of one generation may increase the sufferings of the next. But they will make it easier for those that come after them to strive for that goal to which, even without their cooperation, the great, unconscious forces impelling human kind. Here, I will show you a little poem I once wrote in which I expressed my idea better than I can do it now."

The poem which she produced read as follows:

A Soul, half through the Gate, said unto Life:

"What dos thou offer me?" And Life replied:

"Sorrow, unceasing struggle, disappointment;

after these

Darkness and silence." The Soul said unto Death:

"What dos thou offer me?" And Death replied:

"In the beginning what Life gives at last."

Turning to Life: "And if I live and struggle?"

"Others shall live and struggle after thee

Counting it easier where thou hast passed."

"And by their struggles?" "Easier place shall be

For others, still to rise to keener pain

Of conquering Agony!" "and what have I

To do with all these others? Who are they?"

"Yourself!" "And all who went before?" "Yourself."

"The darkness and the silence, too, have end?"

“They end in light and sound; peace ends in pain,

Death ends in Me, and thou must glide from

Self

To Self, as light to shade and shade to light again.

Choose!” The Soul, sighing, answered: “I will live.”

“Sometimes I think,” she went on, that it will all end in a great cataclysm of nature. At other times, when I am in one of my rare, optimistic moods, I have faith, just like a Christian, and believe that there will be a better and a nobler life for the generations that are to come long after we have returned to dust.

“Let me say here in fairness that these are only my own views. They are not the principles of anarchism. Most of the Anarchists are egoists, believing that happiness is the main object of life. In that I differ with them. I also believe in property, not as a theory or a principle, but as an established fact. There must be property. The world cannot exist a day without it.

“Another point on which I disagree with my fellow-Anarchists is in the theory of the administration of justice. They believe that justice should be administered by societies organized for that purpose. My theory is that of Jesus Christ: If a man smite you upon the right cheek, turn him the left. I do not believe in the administration of justice. I think that when we realize the ideal state there will be no need to administer justice. It will administer itself. When a man cannot profit by stolen goods, he will not steal.”

“Do you write much poetry?”

“Yes, I have written considerable verse. I will give you, if you like, a copy of some of the things I have written.”

That ended the interview. Miss de Cleyre gave the reporter some specimens of her poetry and prose writings, some of which had appeared in the periodicals, but most of which she had published herself. the style of her poetry reminds one strongly of that of a well-known “poetess of passion.” One of her poems, entitled “His Confession,” describes a man telling his sweetheart how he succumbed to temptation, after he parted with her one the previous night. The climax runs as follows:

Just as I reached the open, where the moon light fell broad and wide,

A woman’s figure in rustling robes floated out from the other side.

A woman-you do not know her-have probably never seen –

She was I;as a forest panther, stately and tall as a queen;

And her dress, a shimmering golden gauze, fell round her figure slim

Like a tissue of woven moonlight, revealing each sculptured limb;

And her eyes were like light beyond a light, dim ‘neath
a drooping lid,
Fiery and humid and soft and fierce, bidding what they
they forbid;
And her mouth was red, where a wondrous smile lay
on it like a wreath
Hinting the kisses that in it lay, and the passion of
strong, white teeth.
She held out a warm small hand to me, with a little
silvery laugh
Like bacchanal belie that scattered my dreams of you
like chaff.
A maddening, sweet aroma stole over my senses then
And I kissed her, kissed her, kissed her, over and
again.
What did I think or remember, what did I know or
care.
As I panted, trembling, tangled in with the tawn of
her tig’rish hair;
I was drun with the wine of her lingering hips, with
the fume of her burning sighs.
I was drowning in the luminous languer that lay in her
leonine eyes.
And the world was forgot, and heaven forgot, and God
was forgot, and you-
Passion was a master, and I its slave-the False set its
heel on the True
I had fallen, without a struggle, at the first touch of

Lust's red brands

Had flund the years to the winds, and took this Dead-

Sea fruit in my hands.

For the kiss of a beautiful animal I had bartered a

noble love.

For the hand of a saint had taken the scene of a leman's love:

Her other poems on love run in the same strain. She has also written a pamphlet on "Sex Slavery" and a sonnet to Gov. Altgeldt for having pardoned the Anarchists.

What is Anarcho-Transhumanism? - William Gillis

Anarcho-Transhumanism is the recognition that social liberty is inherently bound up with material liberty, and that freedom is ultimately a matter of expanding our capacity and opportunities to engage with the world around us. It is the realization that our resistance against those social forces that would subjugate and limit us is but part of a spectrum of efforts to expand human agency—to facilitate our inquiry and creativity.

This means not just being free from the arbitrary limitations our bodies might impose, but free to shape the world around us and deepen the potential of our connections to one another through it.

It means the tools we use should be openly knowable and infinitely customizable; it means bodies that are not locked into processes in which we have no say. It knows that the hunger for choice behind birth control, regrown limbs and sexual reassignment is the same hunger that organizes workers and sets fire to prisons. It is struggle to live free. . . and do so for one more year, one more decade, one more century. It means not just transcending the strictures of gender, but of genetics and all previous human experience. It means fighting to be allowed the fullest actualization of who and what we want to be, whenever we want to be it.

It means challenging and altering the conditions that might otherwise govern us. It means when the tools exist to better our lives they should be used; that no one should starve when such scarcity can be eliminated. It means vigilantly engaging with nature rather than bullying or surrendering to it. It is the knowledge that victory for the working class will only truly arrive when every worker individually owns the means of production—capable of fabricating anything and everything for themselves. It is proactive engagement with the environmental conditions that force hierarchy and inescapable collectivism. It means freeing our society from the hierarchies of two dimensional landscapes, to move our destructive infrastructures outside the biosphere and to eventually shake off sedentary civilization and take our place as hunter-gatherers between the stars.

It means cryptography—unbreakable channels of private communication added up into an unbreakable hive of ideas and knowledge. It also means the abolition of public privacy—the creation of a world where the actions we take with one another are shareable and verifiable in an instant. And ultimately it will be the freedom to surpass the limited bandwidth of language and

connect more and more directly to one another—to merge minds and transcend individual subjectivities as desired.

Anarcho-Transhumanism is all of these things and any one of them.

Towards a Liberatory Technology - Murray Bookchin (Post-Anarchism, 2004)

Not since the days of the Industrial Revolution have popular attitudes toward technology fluctuated as sharply as in the past few decades. During most of the twenties, and even well into the thirties, public opinion generally welcomed technological innovation and identified man's welfare with the industrial advances of the time. This was a period when Soviet apologists could justify Stalin's most brutal methods and worst crimes merely by describing him as the "industrializer" of modern Russia. It was also a period when the most effective critique of capitalist society could rest on the brute facts of economic and technological stagnation in the United States and Western Europe. To many people there seemed to be a direct, one-to-one relationship between technological advances and social progress; a fetishism of the word "industrialization" excused the most abusive of economic plans and programs.

Today, we would regard these attitudes as naive. Except perhaps for the technicians and scientists who design the "hardware," the feeling of most people toward technological innovation could be described as schizoid, divided into a gnawing fear of nuclear extinction on the one hand, and a yearning for material abundance, leisure and security on the other. Technology, too, seems to be at odds with itself. The bomb is pitted against the power reactor, the intercontinental missile against the communications satellite. The same technological discipline tends to appear both as a foe and a friend of humanity, and even traditionally human-oriented sciences, such as medicine, occupy an ambivalent position—as witness the promise of advances in chemotherapy and the threat created by research in biological warfare.

It is not surprising to find that the tension between promise and threat is increasingly being resolved in favor of threat by a blanket rejection of technology. To an evergrowing extent, technology is viewed as a demon, imbued with a sinister life of its own, that is likely to mechanize man if it fails to exterminate him. The deep pessimism this view produces is often as simplistic as the optimism that prevailed in earlier decades. There is a very real danger that we will lose our perspective toward technology, that we will neglect its liberatory tendencies, and, worse, submit fatalistically to its use for destructive ends. If we are not to be paralyzed by this new form of social fatalism, a balance must be struck.

The purpose of this article is to explore three questions. What is the liberatory potential of modern technology, both materially and spiritually? What tendencies, if any, are reshaping the machine for use in an organic, human-oriented society? And finally, how can the new technology and resources be used in an ecological manner—that is, to promote the balance of nature, the full development of natural regions, and the creation of organic, humanistic communities?

The emphasis in the above remarks should be placed on the word "potential." I make no claim that technology is necessarily liberatory or consistently beneficial to man's development. But I surely

do not believe that man is destined to be enslaved by technology and technological modes of thought (as Juenger and Elul imply in their books on the subject). On the contrary, I shall try to show that an organic mode of life deprived of its technological component would be as nonfunctional as a man deprived of his skeleton. Technology must be viewed as the basic structural support of a society; it is literally the framework of an economy and of many social institutions.

Technology and Freedom

The year 1848 stands out as a turning point in the history of modern revolutions. This was the year when Marxism made its debut as a distinct ideology in the pages of the Communist Manifesto, and when the proletariat, represented by the Parisian workers, made its debut as a distinct political force on the barricades of June. It could also be said that 1848, a year close to the halfway mark of the nineteenth century, represents the culmination of the traditional steam-powered technology initiated by the Newcomen engine a century and a half earlier.

What strikes us about the convergence of these ideological, political and technological milestones is the extent to which the Communist Manifesto and the June barricades were in advance of their time. In the 1840s, the Industrial Revolution centered around three areas of the economy: textile production, iron-making and transportation. The invention of Arkwright's spinning machine, Watt's steam engine and Cartwright's power loom had finally brought the factory system to the textile industry; meanwhile, a number of striking innovations in iron-making technology assured the supply of high-quality, inexpensive metals needed to sustain factory and railway expansion. But these innovations, important as they were, were not accompanied by commensurate changes in other areas of industrial technology. For one thing, few steam engines were rated at more than fifteen horsepower, and the best blast furnaces provided little more than a hundred tons of iron a week—a fraction of the thousands of tons produced daily by modern furnaces. More important, the remaining areas of the economy were not yet significantly affected by technological innovation. Mining techniques, for example, had changed little since the days of the Renaissance. The miner still worked the ore face with a hand pick and a crowbar, and drainage pumps, ventilation systems and hauling techniques were not greatly improved over the descriptions we find in Agricola's classic on mining written three centuries earlier. Agriculture was only emerging from its centuries-old sleep. Although a great deal of land had been cleared for food cultivation, soil studies were still a novelty. So heavy, in fact, was the weight of tradition and conservatism that most harvesting was still done by hand, despite the fact that a mechanical reaper had been perfected as early as 1822. Buildings, despite their massiveness and ornateness, were erected primarily by sheer muscle power; the hand crane and windlass still occupied the mechanical center of the construction site. Steel was a relatively rare metal: as late as 1850 it was priced at $250 a ton and, until the discovery of the Bessemer converter, steel-making techniques had stagnated for centuries. Finally, although precision tools had made great forward strides, it is worth noting that Charles Babbage's efforts to build a sophisticated mechanical computer were thwarted by the inadequate machining techniques of the time.

I have reviewed these technological developments because both their promise and their limitations exercised a profound influence on nineteenth century revolutionary thought. The innovations in textile and iron-making technology provided a new sense of promise, indeed a new stimulus, to

socialist and Utopian thought. It seemed to the revolutionary theorist that for the first time in history he could anchor his dream of a liberatory society in the visible prospect of material abundance and increased leisure for the mass of humanity. Socialism, the theorists argued, could be based on self-interest rather than on man's dubious nobility of mind and spirit. Technological innovation had transmuted the socialist ideal from a vague humanitarian hope into a practical program.

The newly acquired practicality compelled many socialist theorists, particularly Marx and Engels, to grapple with the technological limitations of their time. They were faced with a strategic issue: in all previous revolutions, technology had not yet developed to a level where men could be freed from material want, toil and the struggle over the necessities of life. However glowing and lofty were the revolutionary ideals of the past, the vast majority of the people, burdened by material want, had to leave the stage of history after the revolution, return to work, and deliver the management of society to a new leisured class of exploiters. Indeed, any attempt to equalize the wealth of society at a low level of technological development would not have eliminated want, but would have merely made it into a general feature of society as a whole, thereby recreating all the conditions for a new struggle over the material things of life, for new forms of property, and eventually for a new system of class domination. A development of the productive forces is the "absolutely necessary practical premise [of communism]," wrote Marx and Engels in 1846, "because without it want is generalized, and with want the struggle for necessities and all the old filthy business would necessarily be reproduced."

Virtually all the Utopias, theories and revolutionary programs of the early nineteenth century were faced with problems of necessity—of how to allocate labor and material goods at a relatively low level of technological development. These problems permeated revolutionary thought in a way comparable only to the impact of original sin on Christian theology. The fact that men would have to devote a substantial portion of their time to toil, for which they would get scant returns, formed a major premise of all socialist ideology—authoritarian and libertarian, Utopian and scientific, Marxist and anarchist. Implicit in the Marxist notion of a planned economy was the fact, incontestably clear in Marx's day, that socialism would still be burdened by relatively scarce resources. Men would have to plan—in effect, to restrict—the distribution of goods and would have to rationalize—in effect, to intensify—the use of labor. Toil, under socialism, would be a duty, a responsibility which every able-bodied individual would have to undertake. Even Proudhon advanced this dour view when he wrote: "Yes, life is a struggle. But this struggle is not between man and man—it is between man and Nature; and it is each one's duty to share it." This austere, almost biblical, emphasis on struggle and duty reflects the harsh quality of socialist thought during the Industrial Revolution.

The problem of dealing with want and work—an age-old problem perpetuated by the early Industrial Revolution—produced the great divergence in revolutionary ideas between socialism and anarchism. Freedom would still be circumscribed by necessity in the event of a revolution. How was this world of necessity to be "administered"? How could the allocation of goods and duties be decided? Marx left this decision to a state power, a transitional "proletarian" state power, to be sure, but nevertheless a coercive body, established above society. According to Marx, the

state would “wither away” as technology developed and enlarged the domain of freedom, granting humanity material plenty and the leisure to control its affairs directly. This strange calculus, in which necessity and freedom were mediated by the state, differed very little politically from the common run of bourgeois–democratic radical opinion in the last century. The anarchist hope for the abolition of the state, on the other hand, rested largely on a belief in the viability of man’s social instincts. Bakunin, for example, thought custom would compel any individuals with antisocial proclivities to abide by collectivist values and needs without obliging society to use coercion. Kropotkin, who exercised more influence among anarchists in this area of speculation, invoked man’s propensity for mutual aid—essentially a social instinct—as the guarantor of solidarity in an anarchist community (a concept which he derived from his study of animal and social evolution).

The fact remains, however, that in both cases—the Marxist and the anarchist—the answer to the problem of want and work was shot through with ambiguity. The realm of necessity was brutally present; it could not be conjured away by mere theory and speculation. The Marxists could hope to administer necessity by means of a state, and the anarchists, to deal with it through free communities, but given the limited technological development of the last century, in the last analysis both schools depended on an act of faith to cope with the problem of want and work. Anarchists could argue against the Marxists that any transitional state, however revolutionary its rhetoric and democratic its structure, would be self-perpetuating; it would tend to become an end in itself and to preserve the very material and social conditions it had been created to remove. For such a state to “wither away” (that is, promote its own dissolution) would require its leaders and bureaucracy to be people of superhuman moral qualities. The Marxists, in turn, could invoke history to show that custom and mutualistic propensities were never effective barriers to the pressures of material need, or to the onslaught of property, or to the development of exploitation and class domination. Accordingly, they dismissed anarchism as an ethical doctrine which revived the mystique of the natural man and his inborn social virtues.

The problem of want and work—of the realm of necessity—was never satisfactorily resolved by either body of doctrine in the last century. It is to the lasting credit of anarchism that it uncompromisingly retained its high ideal of freedom—the ideal of spontaneous organization, community, and the abolition of all authority—although this ideal remained only a vision of man’s future, of the time when technology would eliminate the realm of necessity entirely. Marxism increasingly compromised its ideal of freedom, painfully qualifying it with transitional stages and political expediencies, until today it is an ideology of naked power, pragmatic efficiency and social centralization almost indistinguishable from the ideologies of modern state capitalism.

In retrospect, it is astonishing to consider how long the problem of want and work cast its shadow over revolutionary theory. In a span of only nine decades—the years between 1850 and 1940—Western society created, passed through and evolved beyond two major epochs of technological history—the paleotechnic age of coal and steel, and the neotechnic age of electric power, synthetic chemicals, electricity and internal combustion engines. Ironically, both ages of technology seemed to enhance the importance of toil in society. As the number of industrial workers increased in proportion to other social classes, labor—more precisely, toil—acquired an increasingly high

status in revolutionary thought. During this period, the propaganda of the socialists often sounded like a paean to toil; not only was toil "ennobling," but the workers were extolled as the only useful individuals in the social fabric. They were endowed with a supposedly superior instinctive ability that made them the arbiters of philosophy, art, and social organization. This puritanical work ethic of the left did not diminish with the passage of time and in fact acquired a certain urgency in the 1930s. Mass unemployment made the job and the social organization of labor the central themes of socialist propaganda in the 1930s. Instead of focusing their message on the emancipation of man from toil, socialists tended to depict socialism as a beehive of industrial activity, humming with work for all. The Communists pointed to Russia as a land where every able-bodied individual was employed and where labor was continually in demand. Surprising as it may seem today, little more than a generation ago socialism was equated with a work-oriented society and liberty with the material security provided by full employment. The world of necessity had subtly invaded and corrupted the ideal of freedom.

That the socialist notions of the last generation now seem to be anachronisms is not due to any superior insights that prevail today. The last three decades, particularly the years of the late 1950s, mark a turning point in technological development, a technological revolution that negates all the values, political schemes and social perspectives held by mankind throughout all previous recorded history. After thousands of years of torturous development, the countries of the Western world (and potentially all countries) are confronted by the possibility of a materially abundant, almost workless era in which most of the means of life can be provided by machines. As we shall see, a new technology has developed that could largely replace the realm of necessity by the realm of freedom. So obvious is this fact to millions of people in the United States and Europe that it no longer requires elaborate explanations or theoretical exegesis. This technological revolution and the prospects it holds for society as a whole form the premises of radically new lifestyles among today's young people, a generation that is rapidly divesting itself of the values and the age-old work-oriented traditions of its elders. Even recent demands for a guaranteed annual income sound like faint echoes of the new reality that currently permeates the thinking of the young. Owing to the development of a cybernetic technology, the notion of a toil-less mode of life has become an article of faith to an ever-increasing number of young people.

In fact, the real issue we face today is not whether this new technology can provide us with the means of life in a toil-less society, but whether it can help to humanize society, whether it can contribute to the creation of entirely new relationships between man and man. The demand for a guaranteed annual income is still anchored in the quantitative promise of technology—in the possibility of satisfying material needs without toil. This quantitative approach is already lagging behind technological developments that carry a new qualitative promise—the promise of decentralized, communitarian lifestyles, or what I prefer to call ecological forms of human association.

I am asking a question that is quite different from what is ordinarily posed with respect to modern technology. Is this technology staking out a new dimension in human freedom, in the liberation of man? Can it not only liberate man from want and work, but also lead him to a free, harmonious, balanced human community—an ecocommunity that would promote the unrestricted development

of his potentialities? Finally, can it carry man beyond the realm of freedom into the realm of life and desire?

The Potentialities of Modern Technology

Let me try to answer these questions by pointing to a new feature of modern technology. For the first time in history, technology has reached an open end. The potential for technological development, for providing machines as substitutes for labor is virtually unlimited. Technology has finally passed from the realm of invention to that of design—in other words, from fortuitous discoveries to systematic innovations.

The meaning of this qualitative advance has been stated in a rather freewheeling way by Vannevar Bush, the former director of the Office of Scientific Research and Development:

Suppose, fifty years ago, that someone had proposed making a device which would cause an automobile to follow a white line down the middle of the road, automatically and even if the driver fell asleep.... He would have been laughed at, and his idea would have been called preposterous. So it would have been then. But suppose someone called for such a device today, and was willing to pay for it, leaving aside the question of whether it would actually be of any genuine use whatever. Any number of concerns would stand ready to contract and build it. No real invention would be required. There are thousands of young men in the country to whom the design of such a device would be a pleasure. They would simply take off the shelf some photocells, thermionic tubes, servomechanisms, relays and, if urged, they would build what they call a breadboard model, and it would work. The point is that the presence of a host of versatile, cheap, reliable gadgets, and the presence of men who understand fully all their queer ways, has rendered the building of automatic devices almost straightforward and routine. It is no longer a question of whether they can be built, it is rather a question of whether they are worth building.

Bush focuses here on the two most important features of the new, so-called “second,” industrial revolution, namely the enormous potentialities of modern technology and the cost-oriented, nonhuman limitations that are imposed upon it. I shall not belabor the fact that the cost factor—the profit motive, to state it bluntly—inhibits the use of technological innovations. It is fairly well established that in many areas of the economy it is cheaper to use labor than machines. Instead, I would like to review several developments which have brought us to an open end in technology and deal with a number of practical applications that have profoundly affected the role of labor in industry and agriculture.

Perhaps the most obvious development leading to the new technology has been the increasing interpenetration of scientific abstraction, mathematics and analytic methods with the concrete, pragmatic and rather mundane tasks of industry. This order of relationships is relatively new. Traditionally, speculation, generalization and rational activity were sharply divorced from technology. This chasm reflected the sharp split between the leisured and working classes in ancient and medieval society. If one leaves aside the inspired works of a few rare men, applied science did not come into its own until the Renaissance, and it only began to flourish in the eighteenth and nineteenth centuries.

The men who personify the application of science to technological innovation are not the inventive tinkerers like Edison, but the systematic investigators with catholic interests like Faraday, who add simultaneously to man's knowledge of scientific principles and to engineering. In our own day this synthesis, once embodied by the work of a single, inspired genius, is the work of anonymous teams. Although these teams have obvious advantages, they often have all the traits of bureaucratic agencies—which leads to a mediocre, unimaginative treatment of problems.

Less obvious is the impact produced by industrial growth. This impact is not always technological; it is more than the substitution of machines for human labor. One of the most effective means of increasing output, in fact, has been the continual reorganization of the labor process, extending and sophisticating the division of labor. Ironically, the steady breakdown of tasks to ever more inhuman dimensions—to an intolerably minute, fragmented series of operations and to a cruel simplification of the work process—suggests the machine that will recombine all the separate tasks of many workers into a single mechanized operation. Historically, it would be difficult to understand how mechanized mass manufacture emerged, how the machine increasingly displaced labor, without tracing the development of the work process from craftsmanship, where an independent, highly skilled worker engages in many diverse operations, through the purgatory of the factory, where these diverse tasks are parceled out among a multitude of unskilled or semiskilled employees, to the highly mechanized mill, where the tasks of many are largely taken over by machines manipulated by a few operatives, and finally to the automated and cybernated plant, where operatives are replaced by supervisory technicians and highly skilled maintenance men.

Looking further into the matter, we find still another new development: the machine has evolved from an extension of human muscles into an extension of the human nervous system. In the past, both tools and machines enhanced man's muscular power over raw materials and natural forces. The mechanical devices and engines developed during the eighteenth and nineteenth centuries did not replace human muscles but rather enlarged their effectiveness. Although the machines increased output enormously, the worker's muscles and brain were still required to operate them, even for fairly routine tasks. The calculus of technological advance could be formulated in strict terms of labor productivity: one man, using a given machine, produced as many commodities as five, ten, fifty, or a hundred before the machine was employed. Nasmyth's steam hammer, exhibited in 1851, could shape iron beams with only a few blows, an effort that would have required many manhours of labor without the machine. But the hammer required the muscles and judgment of half a dozen able-bodied men to pull, hold and remove the casting. In time, much of this work was diminished by the invention of handling devices, but the labor and judgment involved in operating the machines formed an indispensable part of the productive process.

The development of fully automatic machines for complex mass-manufacturing operations requires the successful application of at least three technological principles: such machines must have a built-in ability to correct their own errors; they must have sensory devices for replacing the visual, auditory and tactile senses of the worker; and, finally, they must have devices that substitute for the worker's judgment, skill and memory. The effective use of these three principles presupposes that we have also developed the technological means (the effectors, if you will) for

applying the sensory, control and mind-like devices in everyday industrial operation; further, effective use presupposes that we can adapt existing machines or develop new ones for handling, shaping, assembling, packaging and transporting semi-finished and finished products.

The use of automatic, self-correcting control devices in industrial operations is not new. James Watt's fly ball governor, invented in 1788, provides an early mechanical example of how steam engines were self-regulated. The governor, which is attached by metal arms to the engine valve, consists of two freely mounted metal balls supported by a thin, rotating rod. If the engine begins to operate too rapidly, the increased rotation of the rod impels the balls outward by centrifugal force, closing the valve; conversely, if the valve does not admit sufficient steam to operate the engine at the desired rate, the balls collapse inward, opening the valve further. A similar principle is involved in the operation of thermostatically controlled heating equipment. The thermostat, manually preset by a dial to a desired temperature level, automatically starts up heating equipment when the temperature falls and turns off the equipment when the temperature rises.

Both control devices illustrate what is now called the "feedback principle." In modern electronic equipment, the deviation of a machine from a desired level of operation produces electrical signals which are then used by the control device to correct the deviation or error. The electrical signals induced by the error are amplified and fed back by the control system to other devices which adjust the machine. A control system in which a departure from the norm is actually used to adjust a machine is called a closed system. This may be contrasted with an open system—a manually operated wall switch or the arms that automatically rotate an electrical fan—in which the control operates without regard to the function of the device. Thus, if the wall switch is flicked, electric lights go on or off whether it is night or day; similarly the electric fan will rotate at the same speed whether a room is warm or cool. The fan may be automatic in the popular sense of the term, but it is not self-regulating like the flyball governor and the thermostat.

An important step toward developing self-regulating control mechanisms was the discovery of sensory devices. Today these include thermocouples, photoelectric cells, X-ray machines, television cameras and radar transmitters. Used together or singly they provide machines with an amazing degree of autonomy. Even without computers, these sensory devices make it possible for workers to engage in extremely hazardous operations by remote control. They can also be used to turn many traditional open systems into closed ones, thereby expanding the scope of automatic operations. For example, an electric light controlled by a clock represents a fairly simple open system; its effectiveness depends entirely upon mechanical factors. Regulated by a photoelectric cell that turns it off when daylight approaches, the light responds to daily variations in sunrise and sunset. Its operation is now meshed with its function.

With the advent of the computer we enter an entirely new dimension of industrial control systems. The computer is capable of performing all the routine tasks that ordinarily burdened the mind of the worker a generation or so ago. Basically, the modern digital computer is an electronic calculator capable of performing arithmetical operations enormously faster than the human brain. This element of speed is a crucial factor: the enormous rapidity of computer operations—a quantitative superiority of computer over human calculations—has profound qualitative significance. By virtue of its speed, the computer can perform highly sophisticated mathematical

and logical operations. Supported by memory units that store millions of bits of information, and using binary arithmetic (the substitution of the digits 0 and 1 for the digits 0 through 9), a properly programmed digital computer can perform operations that approximate many highly developed logical activities of the mind. It is arguable whether computer "intelligence" is, or ever will be, creative or innovative (although every few years bring sweeping changes in computer technology), but there is no doubt that the digital computer is capable of taking over all the onerous and distinctly uncreative mental tasks of man in industry, science, engineering, information retrieval and transportation. Modern man, in effect, has produced an electronic "mind" for coordinating, building and evaluating most of his routine industrial operations. Properly used within the sphere of competence for which they are designed, computers are faster and more efficient than man himself.

What is the concrete significance of this new industrial revolution? What are its immediate and foreseeable implications for work? Let us trace the impact of the new technology on the work process by examining its application to the manufacture of automobile engines at the Ford plant in Cleveland. This single instance of technological sophistication will help us assess the liberatory potential of the new technology in all manufacturing industries.

Until the advent of cybernation in the automobile industry, the Ford plant required about three hundred workers, using a large variety of tools and machines, to turn an engine block into an engine. The process from foundry casting to a fully machined engine took many manhours to perform. With the development of what we commonly call an "automated" machine system, the time required to transform the casting into an engine was reduced to less than fifteen minutes. Aside from a few monitors to watch the automatic control panels, the original three-hundred-man labor force was eliminated. Later a computer was added to the machining system, turning it into a truly closed, cybernated system. The computer regulates the entire machining process, operating on an electronic pulse that cycles at a rate of three-tenths of a millionth of a second.

But even this system is obsolete. "The next generation of computing machines operates a thousand times as fast—at a pulse rate of one in every three-tenths of a billionth of a second," observes Alice Mary Hilton. "Speeds of millionths and billionths of a second are not really intelligible to our finite minds. But we can certainly understand that the advance has been a thousand-fold within a year or two. A thousand times as much information can be handled or the same amount of information can be handled a thousand times as fast. A job that takes more than sixteen hours can be done in one minute! And without any human intervention! Such a system does not control merely an assembly line but a complete manufacturing and industrial process!"

There is no reason why the basic technological principles involved in cybernating the manufacture of automobile engines cannot be applied to virtually every area of mass manufacture—from the metallurgical industry to the food processing industry, from the electronics industry to the toymaking industry, from the manufacture of prefabricated bridges to the manufacture of prefabricated houses. Many phases of steel production, tool-and-die making, electronic equipment manufacture and industrial chemical production are now partly or largely automated. What tends to delay the advance of complete automation to every phase of modern industry is the enormous cost involved in replacing existing industrial facilities by new, more sophisticated ones and also

the innate conservatism of many major corporations. Finally, as I mentioned before, it is still cheaper to use labor instead of machines in many industries.

To be sure, every industry has its own particular problems, and the application of a toil-less technology to a specific plant would doubtless reveal a multitude of kinks that would require painstaking solutions. In many industries it would be necessary to alter the shape of the product and the layout of the plants so that the manufacturing process would lend itself to automated techniques. But to argue from these problems that the application of a fully automated technology to a specific industry is impossible would be as preposterous as to have argued eighty years ago that flight was impossible because the propeller of an experimental airplane did not revolve fast enough or the frame was too fragile to withstand buffeting by the wind. There is practically no industry that cannot be fully automated if we are willing to redesign the product, the plant, the manufacturing procedures and the handling methods. In fact, any difficulty in describing how, where or when a given industry will be automated arises not from the unique problems we can expect to encounter but rather from the enormous leaps that occur every few years in modern technology. Almost every account of applied automation today must be regarded as provisional: as soon as one describes a partially automated industry, technological advances make the description obsolete.

There is one area of the economy, however, in which any form of technological advance is worth describing—the area of work that is most brutalizing and degrading for man. If it is true that the moral level of a society can be gauged by the way it treats women, its sensitivity to human suffering can be gauged by the working conditions it provides for people in raw materials industries, particularly in mines and quarries. In the ancient world, mining was often a form of penal servitude, reserved primarily for the most hardened criminals, the most intractable slaves, and the most hated prisoners of war. The mine is the day-to-day actualization of man's image of hell; it is a deadening, dismal, inorganic world that demands pure mindless toil.

Field and forest and stream and ocean are the environment of life: the mine is the environment alone of ores, minerals, metals [writes Lewis Mumford].... In hacking and digging the contents of the earth, the miner has no eye for the forms of things: what he sees is sheer matter and until he gets to his vein it is only an obstacle which he breaks through stubbornly and sends up to the surface. If the miner sees shapes on the walls of his cavern, as the candle flickers, they are only the monstrous distortions of his pick or his arm: shapes of fear. Day has been abolished and the rhythm of nature broken: continuous day-and-night production first came into existence here. The miner must work by artificial light even though the sun be shining outside; still further down in the seams, he must work by artificial ventilation, too: a triumph of the 'manufactured environment.'

The abolition of mining as a sphere of human activity would symbolize, in its own way, the triumph of a liberatory technology. That we can point to this achievement already, even in a single case at this writing, presages the freedom from toil implicit in the technology of our time. The first major step in this direction was the continuous miner, a giant cutting machine with nine-foot blades that slices up eight tons of coal a minute from the coal face. It was this machine, together with mobile loading machines, power drills and roof bolting, that reduced mine employment in areas

like West Virginia to about a third of the 1948 levels, at the same time nearly doubling individual output. The coal mine still required miners to place and operate the machines. The most recent technological advances, however, replace the operators by radar sensing devices and eliminate the miner completely.

By adding sensing devices to automatic machinery we could easily remove the worker not only from the large, productive mines needed by the economy, but also from forms of agricultural activity patterned on modern industry. Although the wisdom of industrializing and mechanizing agriculture is highly questionable (I shall return to this subject at a later point), the fact remains that if society so chooses, it can automate large areas of industrial agriculture, ranging from cotton picking to rice harvesting. We could operate almost any machine, from a giant shovel in an open-strip mine to a grain harvester in the Great Plains, either by cybernated sensing devices or by remote control with television cameras. The effort needed to operate these devices and machines at a safe distance, in comfortable quarters, would be minimal, assuming that a human operator were required at all.

It is easy to foresee a time, by no means remote, when a rationally organized economy could automatically manufacture small "packaged" factories without human labor; parts could be produced with so little effort that most maintenance tasks would be reduced to the simple act of removing a defective unit from a machine and replacing it by another—a job no more difficult than pulling out and putting in a tray. Machines would make and repair most of the machines required to maintain such a highly industrialized economy. Such a technology, oriented entirely toward human needs and freed from all consideration of profit and loss, would eliminate the pain of want and toil—the penalty, inflicted in the form of denial, suffering and inhumanity, exacted by a society based on scarcity and labor.

The possibilities created by a cybernated technology would no longer be limited merely to the satisfaction of man's material needs. We would be free to ask how the machine, the factory and the mine could be used to foster human solidarity and to create a balanced relationship with nature and a truly organic ecocommunity. Would our new technology be based on the same national division of labor that exists today? The current type of industrial organization—an extension, in effect, of the industrial forms created by the Industrial Revolution—fosters industrial centralization (although a system of workers' management based on the individual factory and local community would go far toward eliminating this feature).

Or does the new technology lend itself to a system of small-scale production, based on a regional economy and structured physically on a human scale? This type of industrial organization places all economic decisions in the hands of the local community. To the degree that material production is decentralized and localized, the primacy of the community is asserted over national institutions—assuming that any such national institutions develop to a significant extent. In these circumstances, the popular assembly of the local community, convened in a face-to-face democracy, takes over the full management of social life. The question is whether a future society will be organized around technology or whether technology is now sufficiently malleable so that it can be organized around society. To answer this question, we must further examine certain features of the new technology.

The New Technology and the Human Scale

In 1945, J. Presper Eckert, Jr. and John W. Mauchly of the University of Pennsylvania unveiled ENIAC, the first digital computer to be designed entirely along electronic principles. Commissioned for use in solving ballistic problems, ENIAC required nearly three years of work to design and build. The computer was enormous. It weighed more than thirty tons, contained 18,800 vacuum tubes with half a million connections (these connections took Eckert and Mauchly two and a half years to solder), a vast network of resistors, and miles of wiring. The computer required a large air-conditioning unit to cool its electronic components. It often broke down or behaved erratically, requiring time-consuming repairs and maintenance. Yet by all previous standards of computer development, ENIAC was an electronic marvel. It could perform five thousand computations a second, generating electrical pulse signals that cycled at 100,000 a second. None of the mechanical or electro-mechanical computers in use at the time could approach this rate of computational speed.

Some twenty years later, the Computer Control Company of Framingham, Massachusetts, offered the DDP-124 for public sale. The DDP-124 is a small, compact computer that closely resembles a bedside AM-radio receiver. The entire ensemble, together with a typewriter and memory unit, occupies a typical office desk. The DDP-124 performs over 285,000 computations a second. It has a true stored-program memory that can be expanded to retain nearly 33,000 words (the "memory" of ENIAC, based on preset plug wires, lacked anything like the flexibility of present-day computers); its pulses cycle at 1.75 billion per second. The DDP-124 does not require any air-conditioning unit; it is completely reliable, and it creates very few maintenance problems. It can be built at a minute fraction of the cost requi red to construct ENIAC.

The difference between ENIAC and DDP-124 is one of degree rather than kind. Leaving aside their memory units, both digital computers operate according to the same electronic principles. ENIAC, however, was composed primarily of traditional electronic components (vacuum tubes, resistors, etc.) and thousands of feet of wire; the DDP-124, on the other hand, relies primarily on micro-circuits. These microcircuits are very small electronic units that pack the equivalent of ENI AC's key electronic components into squares a mere fraction of an inch in size.

Paralleling the miniaturization of computer components is the remarkable sophistication of traditional forms of technology. Ever-smaller machines are beginning to replace large ones. For example, a fascinating breakthrough has been achieved in reducing the size of continuous hot-strip steel rolling mills. This kind of mill is one of the largest and costliest facilities in modern industry. It may be regarded as a single machine, nearly a half mile in length, capable of reducing a ten-ton slab of steel about six inches thick and fifty inches wide to a thin strip of sheet metal a tenth or a twelfth of an inch thick. This installation alone, including heating furnaces, coilers, long roller tables, scale-breaker stands and buildings, may cost tens of millions of dollars and occupy fifty acres or more. It produces three hundred tons of steel sheet an hour. To be used efficiently, such a continuous hot-strip mill must be operated together with large batteries of coke ovens, open-hearth furnaces, blooming mills, etc. These facilities, in conjunction with hot and cold rolling mills, may cover several square miles. Such a steel complex is geared to a national division of labor, to highly concentrated sources of raw materials (generally located at a great distance from the complex),

and to large national and international markets. Even if it is totally automated, its operating and management needs far transcend the capabilities of a small, decentralized community. The type of administration it requires tends to foster centralized social forms.

Fortunately, we now have a number of alternatives—more efficient alternatives in many respects—to the modern steel complex. We can replace blas tfurnaces and open-hearth furnaces by a variety of electric furnaces which are generally quite small and produce excellent pig iron and steel; they can operate not only with coke but also with anthracite coal, charcoal, and even lignite. Or we can choose the HyL process, a batch process in which natural gas is used to turn high-grade ores or concentrates into sponge iron. Or we can turn to the Wiberg process, which involves the use of charcoal, carbon monoxide and hydrogen. I n any case, we can reduce the need for coke ovens, blast furnaces, open hearth furnaces, and possibly even solid reducing agents.

One of the most important steps towards scaling a steel complex to community dimensions is—the development of the planetary mill by T. Sendzimir. The planetary mill reduces the typical continuous hot-strip mill to a single planetary stand and a light finishing stand. Hot steel slabs, two and a quarter inches thick, pass through two small pairs of heated feed rolls and a set of work rolls mounted in two circular cages which also contain two backup rolls. By operating the cages and backup rolls at different rotational speeds, the work rolls are made to turn in two directions. This gives the steel skb a terrific mauling and reduces it to a thickness of only one-tenth of an inch. Sendzimir's planetary mill is a stroke of engineering genius; the small work rolls, turning on the two circular cages, replace the need for the four huge roughing stands and six finishing stands in a continuous hot-strip mill.

The rolling of hot steel slabs by the Sendzimir process requires a much smaller operational area than a continuous hot-strip mill. With continuous casting, moreover, we can produce steel slabs without the need for large, costly slabbing mills. A future steel complex based on electric furnaces, continuous casting, a planetary mill and a small continuous cold-reducing mill would require a fraction of the acreage occupied by a conventional installation. It would be fully capable of meeting the steel needs of several moderate-sized communities with low quantities of fuel.

The complex I have described is not designed to meet the needs of a national market. On the contrary, it is suited only for meeting the steel requirements of small or moderate-sized communities and industrially undeveloped countries. Most electric furnaces for pig-iron production produce about a hundred to two hundred and fifty tons a day, while large blast furnaces produce three thousand tons daily. A planetary mill can roll only a hundred tons of steel strip an hour, roughly a third of the output of a continuous hot-strip mill. Yet the very scale of our hypothetical steel complex constitutes one of its most attractive features. Also, the steel produced by our complex is more durable, so the community's rate of replenishing its steel products would be appreciably reduced. Since the smaller complex requires ore, fuel and reducing agents in relatively small quantities, many communities could rely on local resources for their raw materials, thereby conserving the more concentrated resources of centrally located sources of supply, strengthening the independence of the community itself vis-a-vis the traditional centralized economy, and reducing the expense of transportation. What would at first glance seem to be a

costly, inefficient duplication of effort that could be avoided by building a few centralized steel complexes would prove, in the long run, to be more efficient as well as socially more desirable.

The new technology has produced not only miniaturized electronic components and smaller production facilities but also highly versatile, multi-purpose machines. For more than a century, the trend in machine design moved increasingly toward technological specialization and single purpose devices, underpinning the intensive division of labor required by the new factory system. Industrial operations were subordinated entirely to the product. In time, this narrow pragmatic approach has "led industry far from the rational line of development in production machinery," observe Eric W. Leaver and John J. Brown. "It has led to increasingly uneconomic specialization.... Specialization of machines in terms of end product requires that the machine be thrown away when the product is no longer needed. Y et the work the production machine does can be reduced to a set of basic functions—forming, holding, cutting, and so on—and these functions, if correctly analyzed, can be packaged and applied to operate on a part as needed."

Ideally, a drilling machine of the kind envisioned by Leaver and Brown would be able to produce a hole small enough to hold a thin wire or large enough to admit a pipe. Machines with this operational range were once regarded as economically prohibitive. By the mid-1950s, however, a number of such machines were actually designed and put to use. In 1954, for example, a horizontal boring mill was built in Switzerland for the Ford Motor Company's River Rouge Plant at Dearborn, Michigan. This boring mill would qualify beautifully as a Leaver and Brown machine. Equipped with five optical microscope-type illuminated control gauges, the mill drills holes smaller than a needle's eye or larger than a man's fist. The holes are accurate to a ten-thousandth of an inch.

The importance of machines with this kind of operational range can hardly be overestimated. They make it possible to produce a large variety of products in a single plant. A small or moderate-sized community using multipurpose machines could satisfy many of its limited industrial needs without being burdened with underused industrial facilities. There would be less loss in scrapping tools and less need for single-purpose plants. The community's economy would be more compact and versatile, more rounded and self-contained, than anything we find in the communities of industrially advanced countries. The effort that goes into retooling machines for new products would be enormously reduced. Retooling would generally consist of changes in dimensioning rather than in design. Finally, multipurpose machines with a wide operational range are relatively easy to automate. The changes required to use these machines in a cybernated industrial facility would generally be in circuitry and programming rather than in machine form and structure.

Single purpose machines, of course, would continue to exist, and they would still be used for the mass manufacture of a large variety of goods. At present many highly automatic, single-purpose machines could be employed with very little modification by decentralized communities. Bottling and canning machines, for example, are compact, automatic and highly rationalized installations. We could expect to see smaller automatic textile, chemical processing and food processing machines. A major shift from conventional automobiles, buses and trucks to electric vehicles would undoubtedly lead to industrial facilities much smaller in size than existing automobile

plants. Many of the remaining centralized facilities could be effectively decentralized simply by making them as small as possible and sharing their use among several communities.

I do not claim that all of man's economic activities can be completely decentralized, but the majority can surely be scaled to human and communitarian dimensions. This much is certain: we can shift the center of economic power from national to local scale and from centralized bureaucratic forms to local, popular assemblies. This shift would be a revolutionary change of vast proportions, for it would create powerful economic foundations for the sovereignty and autonomy of the local community.

The Ecological Use of Technology

I have tried, thus far, to deal with the possibility of eliminating toil, material insecurity, and centralized economic control—issues which, if "utopian," are at least tangible. In the present section I would like to deal with a problem that may seem highly subjective but which is nonetheless of compelling importance—the need to make man's dependence upon the natural world a visible and living part of his culture.

Actually, this problem is peculiar only to a highly urbanized and industrialized society. In nearly all preindustrial cultures, man's relationship to his natural environment was well defined, viable, and sanctified by the full weight of tradition. Changes in season, variations in rainfall, the life cycles of the plants and animals on which humans depended for food and clothing, the distinctive features of the area occupied by the community—all were familiar and comprehensible, and evoked in men a sense of religious awe, of oneness with nature, and, more pragmatically, a sense of respectful dependence. Looking back to the earliest civilizations of the Western world, we rarely find evidence of a system of social tyranny so overbearing and ruthless that it ignored this relationship. Barbarian invasions and, more insidiously, the development of commercial civilizations may have destroyed the reverential attitude of agrarian cultures toward nature, but the normal development of agricultural systems, however exploitative they were of men, rarely led to the destruction of the soil and terrain. During the most oppressive periods in the history of ancient Egypt and Mesopotamia, the ruling classes kept the irrigation dikes in good repair and tried to promote rational methods of food cultivation. Even the ancient Greeks, heirs to a thin, mountainous forest soil that suffered heavily from erosion, shrewdly reclaimed much of their arable land by turning to orchardry and viticulture. It was not until commercial agricultural systems and highly urbanized societies developed that the natural environment was unsparingly exploited. Some of the worst cases of soil destruction in the ancient world were provided by the giant, slave-worked commercial farms of North Africa and the Italian peninsula.

In our own time, the development of technology and the growth of cities has brought man's alienation from nature to the breaking point. Western man finds himself confined to a largely synthetic urban environment, far removed physically from the land, and his relationship to the natural world is mediated entirely by machines. He lacks familiarity with how most of his goods are produced, and his foods bear only the faintest resemblance to the animals and plants from which they were derived. Boxed into a sanitized urban milieu (almost institutional inform and appearance), modern man is denied even a spectator's role in the agricultural and industrial

systems that satisfy his material needs. He is a pure consumer, an insensate receptacle. It would be unfair, perhaps, to say that he is disrespectful toward the natural environment; the fact is, he scarcely knows what ecology means or what his environment requires to remain in balance.

The balance between man and nature must be restored. I have tried to show elsewhere that unless we establish some kind of equilibrium between man and the natural world, the viability of the human species will be placed in grave jeopardy. Here I shall try to show how the new technology can be used ecologically to reawaken man's sense of dependence upon the environment; I shall try to show how, by reintroducing the natural world into the human experience, we can contribute to the achievement of human wholeness.

The classical Utopians fully realized that the first step towards wholeness must be to remove the contradiction between town and country. "It is impossible," wrote Fourier nearly a century and a half ago, "to organize a regular and well balanced association without bringing into play the labors of the field, or at least gardens, orchards, flocks and herds, poultry yards, and a great variety of species, animal and vegetable." Shocked by the social effects of the Industrial Revolution, Fourier added: "They are ignorant of this principle in England, where they experiment with artisans, with manufacturing labor alone, which cannot by itself suffice to sustain social union."

To argue that the modern urban dweller should once again enjoy "the labors of the field" might well seem like gallows humor. A restoration of peasant agriculture prevalent in Fourier's day is neither possible nor desirable. Charles Gide was surely correct when he observed that agricultural labor "is not necessarily more attractive than industrial labor; to till the earth has always been regarded ... as the type of painful toil, of toil which is done with 'the sweat of one's brow." Fourier does not answer this objection by suggesting that his phalansteries will mainly cultivate fruits and vegetables instead of grains. If our vision were to extend no further than prevailing techniques of land management, the only alternative to peasant agriculture would seem to be a highly specialized and centralized form of farming, its techniques paralleling the methods used in present-day industry. Far from achieving a balance between town and country, we would be faced with a synthetic environment that had totally assimilated the natural world.

If we grant that the land and the community must be reintegrated physically, that the community must exist in an agricultural matrix which renders man's dependence upon nature explicit, the problem we face is how to achieve this transformation without imposing "painful toil" on the community. How, in short, can husbandry, ecological forms of food cultivation and farming on a human scale be practiced without sacrificing mechanization?

Some of the most promising technological advances in agriculture made since World War II are as suitable for small-scale, ecological forms of land management as they are for the immense, industrial-type commercial units that have become prevalent over the past few decades. Let us consider an example. The augermatic feeding of livestock illustrates a cardinal principle of rational farm mechanization—the deployment of conventional machines and devices in away that virtually eliminates arduous farm labor. By linking a battery of silos with augers, different nutrients can be mixed and transported to feed pens merely by pushing some buttons and pulling a few switches. A job that may have required the labor of five or six men working half a day with pitchforks and

buckets can now be performed by one man in a few minutes. This type of mechanization is intrinsically neutral: it can be used to feed immense herds or just a few hundred head of cattle; the silos may contain natural feed or synthetic, hormonized nutrients; the feeder can be employed on relatively small farms with mixed livestock or on large beef-raising ranches, or on dairy farms of all sizes. In short, augermatic feeding can be placed in the service of the most abusive kind of commercial exploitation or of the most sensitive applications of ecological principles.

This holds true for most of the farm machines that have been designed (in many cases simply redesigned to achieve greater versatility) in recent years. The modern tractor, for example, is a work of superb mechanical ingenuity. Garden-type models can be used with extraordinary flexibility for a large variety of tasks; they are light and extremely manageable, and they can follow the contour of the most exacting terrain without damaging the land. Large tractors, especially those used in hot climates, are likely to have air-conditioned cabs; in addition to pulling equipment, they may have attachments for digging postholes, for doing the work of forklift trucks, or even for providing power units for grain elevators. Plows have been developed to meet every contingency in tillage. Advanced models are even regulated hydraulically to rise and fall with the lay of the land. Mechanical planters are available for virtually every kind of crop. “Minimum tillage” is achieved by planters which apply seed, fertilizer and pesticides (of course!) simultaneously, a technique that telescopes several different operations into a single one and reduces the soil compaction often produced by the recurrent use of heavy machines.

The variety of mechanical harvesters has reached dazzling proportions. Harvesters have been developed for many different kinds of orchards, berries, vines, vegetables and field crops. Barns, feed pens and storage units have been totally revolutionized by augers, conveyor belts, airtight silos, automatic manure removers, climate-control devices, etc. Crops are mechanically shelled, washed, counted, preserved by freezing or canning, packaged and crated. The construction of concrete-lined irrigation ditches has become a simple mechanical operation that can be performed by one or two excavating machines. Terrain with poor drainage or subsoil can be improved by earth-moving equipment and by tillage devices that penetrate beyond the true soil.

Although a great deal of agricultural research is devoted to the development of harmful chemical agents and nutritionally dubious crops, there have been extraordinary advances in the genetic improvement of food plants. Many new grain and vegetable varieties are resistant to insect predators, plant diseases, and cold weather. In many cases, these varieties are a definite improvement over natural ancestral types and they have been used to open large areas of intractable land to food cultivation.

Let us pause at this point to envision how our free community might be integrated with its natural environment. We suppose the community to have been established after a careful study has been made of its natural ecology—its air and water resources, its climate, its geological formations, its raw materials, its soils, and its natural flora and fauna. Land management by the community is guided entirely by ecological principles, so that an equilibrium is maintained between the environment and its human inhabitants. Industrially rounded, the community forms a distinct unit within a natural matrix; it is socially and aesthetically in balance with the area it occupies.

Agriculture is highly mechanized in the community, but as mixed as possible with respect to crops, livestock and timber. Variety of flora and fauna is promoted as a means of controlling pest infestations and enhancing scenic beauty. Large-scale farming is practiced only where it does not conflict with the ecology of the region. Owing to the generally mixed character of food cultivation, agriculture is pursued by small farming units, each demarcated from the others by tree belts, shrubs, pastures and meadows. In rolling, hilly or mountainous country, land with sharp gradients is covered by timber to prevent erosion and conserve water. The soil on each acre is studied carefully and committed only to those crops for which it is most suited. Every effort is made to blend town and country without sacrificing the distinctive contribution that each has to offer to the human experience. The ecological region forms the living social, cultural and biotic boundaries of the community or of the several communities that share its resources. Each community contains many vegetable and flower gardens, attractive arbors, park land, even streams and ponds which support fish and aquatic birds. The countryside, from which food and raw materials are acquired, not only constitutes the immediate environs of the community, accessible to all by foot, but also invades the community. Although town and country retain their identity and the uniqueness of each is highly prized and fostered, nature appears everywhere in the town, and the town seems to have caressed and left a gentle, human imprint on nature.

I believe that a free community will regard agriculture as husbandry, an activity as expressive and enjoyable as crafts. Relieved of toil by agricultural machines, communitarians will approach food cultivation with the same playful and creative attitude that men so often bring to gardening. Agriculture will become a living part of human society, a source of pleasant physical activity and, ly virtue of its ecological demands, an intellectual, scientific and artistic challenge. Communitarians will blend with the world of life around them as organically as the community blends with its region. They will regain the sense of oneness with nature that existed in humans from primordial times. Nature and the organic modes of thought it always fosters will become an integral part of human culture; it will reappear with a fresh spirit in man's paintings, literature, philosophy, dances, architecture, domestic furnishings, and in his very gestures and day-to-day activities. Culture and the human psyche will be thoroughly suffused by a new animism. The region will never be exploited, but it will be used as fully as possible. Every attempt will be made by the community to satisfy its requirements locally—to use the region's energy resources, minerals, timber, soil, water, animals and plants as rationally and humanistically as possible and without violating ecological principles. In this connection, we can foresee that the community will employ new techniques that are still being developed today, many of which lend themselves superbly to a regionally based economy. I refer hereto methods for extracting trace and diluted resources from the earth, water and air; to solar, wind, hydroelectric and geothermal energy; to the use of heat pumps, vegetable fuels, solar ponds, thermoelectric converters and, eventually, controlled thermonuclear reactions.

There is a kind of industrial archeology that reveals in many areas the evidence of a once-burgeoning economic activity long abandoned by our predecessors. In the Hudson Valley, the Rhine Valley, the Appalachians and the Pyrenees, we find the relics of mines and once highly-developed metallurgical crafts, the fragmentary remains of local industries, and the outlines of long-deserted farms—all vestiges of flourishing communities based on local raw materials and

resources. These communities declined because the products they once furnished were elbowed out by large-scale, national industries based on mass production techniques and concentrated sources of raw materials. The old resources are often still available for use by each locality; "valueless" in a highly urbanized society, they are eminently suitable for use by decentralized communities and they await the application of industrial techniques that are adapted for small-scale quality production. If we were to take a careful inventory of the resources available in many depopulated regions of the world, the possibility that communities could satisfy many of their material needs locally is likely to be much greater than we suspect.

Technology, by its continual development, tends to expand local possibilities. As an example, let us consider how seemingly inferior and highly intractable resources are made available by technological advances. Throughout the late nineteenth and early twentieth centuries, the Mesabi range in Minnesota provided the American steel industry with extremely rich ores, an advantage which promoted the rapid expansion of the domestic metal industry. As these reserves declined, the country was faced with the problem of mining taconite, a low-grade ore that is about forty percent iron. Conventional mining methods are virtually impossible; it takes a churn drill an hour to bite through only one foot of taconite. Recently, however, the mining of taconite became feasible; a jet-flame drill was developed which cuts through the ore at the rate of twenty to thirty feet an hour. After holes are burned by the flame, the ore is blasted and processed for the steel industry by newly perfected grinding, separating and agglomerating operations.

Soon it may be possible to extract highly diffused or diluted materials from the earth, from a wide variety of gaseous waste products, and from the sea. Some of our most valuable metals are actually fairly common, but they exist in highly diffused or trace amounts. Hardly a patch of soil or a common rock exists that does not contain traces of gold, larger quantities of uranium, and even larger amounts of other industrially useful elements such as magnesium, zinc, copper and sulphur. A bout five percent of the earth's crust is made of iron. How can we extract these resources? The problem has been solved, in principle at least, by the analytical techniques chemists use to detect these elements. As the chemist Jacob Rosin argues, if an element can be detected in the laboratory, there is reason to hope that it can be extracted on a sufficiently large scale to be used by industry.

For more than half a century, most of the world's commercial nitrogen has been extracted from the atmosphere. Magnesium, chlorine, bromine and caustic soda are acquired from sea water and sulphur from calcium sulphate and industrial wastes. Large amounts of industrially useful hydrogen could be collected as a byproduct of the electrolysis of brine, but normally it is burned or released in the air by chlorine-producing plants. Carbon could be rescued in enormous quantities from smoke and used economically (carbon is comparatively rare in nature) but is dissipated together with other gaseous compounds in the atmosphere.

The problem industrial chemists face in extracting valuable elements and compounds from the sea and ordinary rock is the cost of the energy needed. Two methods exist—ion exchange and chromatography—and, if further perfected for industrial uses, they could be used to select or separate the desired substances from solutions, but the amount of energy needed to use these methods would be very costly in terms of real wealth. Unless there is an unexpected breakthrough

in extractive techniques, there is little likelihood that conventional sources of energy—fossil fuels like coal and oil—will be used to solve the problem.

It is not that we lack energy per se, but we are just beginning to learn how to use sources that are available in almost limitless quantity. The gross radiant energy striking the earth's surface from the sun is estimated to be more than three thousand times the annual energy consumption of mankind today. Although a portion of this energy is converted into wind or used for photosynthesis by vegetation, a staggering quantity is available for other uses. The problem is how to collect it to satisfy a portion of our energy needs. If solar energy could be collected for house heating, for example, twenty to thirty percent of the conventional energy resources we normally employ could be redirected to other purposes. If we could collect solar energy for all or most of our cooking, water heating, smelting and power production, we would have relatively little need for fossil fuels. Solar devices have been designed for nearly all of these functions. We can heat houses, cook food, boil water, melt metals and produce electricity with devices that use the sun's energy exclusively, but we can't do it efficiently in every latitude of the earth, and we are still confronted with a number of technical problems that can be solved only by crash research programs.

At this writing, quite a few houses have been built that are effectively heated by solar energy. In the United States, the best known of these are the MIT experimental buildings in Massachusetts, the Lof house in Denver, and the Thomason homes in Washington, D.C. Thomason, whose fuel cost for a solar-heated house barely reaches $5 a year, seems to have developed one of the most practical systems at hand. Solar heat in a Thomason home is collected from the roof and transferred by circulating water to a storage tank in the basement. (The water, incidentally, can also be used for cooling the house and as an emergency supply for fire and drinking.) The system is simple and fairly cheap. Located in Washington near the fortieth parallel of latitude, the Thomason houses stand at the edge of the "solar belt"—the latitudes from zero to forty degrees north and south. This belt is the geographic area where the sun's rays can be used most effectively for domestic and industrial energy. With efficient solar heating, Thomason requires a miniscule amount of supple mental conventional fuel to heat his Washington homes.

Two approaches to solar house-heating are possible in cooler areas: heating systems could be more elaborate, which would reduce the consumption of conventional fuel to levels approximating those of the Thomason homes; or simple conventional fuel systems could be used to satisfy anywhere from ten to fifty percent of the heating needs. As Hans Thirring observes (with an eye toward cost and effort):

The decisive advantage of solar heating lies in the fact that no running costs arise, except the electricity bill for driving the fans, which is very small. Thus the one single investment for the installation pays once and for all the heating costs for the lifetime of the house. In addition, the system works automatically without smoke, soot, and fume production, and saves all trouble in stoking, refuelling, cleaning, repair and other work. Adding solar heat to the energy system of a country helps to increase the wealth of the nation, and if all houses in areas with favorable conditions were equipped with solar heating systems, fuel saving worth millions of pounds yearly could be achieved. The work of Telkes, Hottel, Lof, Bliss, and other scientists who are paving the

way for solar heating is real pioneer work, the full significance of which will emerge more clearly in the future.

The most widespread applications of solar energy devices are in cooking and water heating. Many thousands of solar stoves are used in underdeveloped countries, injapan, and in the warm latitudes of the U nited States. A solar stove is simply an umbrella-like reflector equipped with a grill that can broil meat or boil a quart of water within fifteen minutes in bright sunlight. Such a stove is safe, portable and clean; it requires no fuel or matches, nor does it produce any annoying smoke. A portable solar oven delivers temperatures as high as four hundred fifty degrees and is even more compact and easier to handle than a solar stove. Solar water-heaters are used widely in private homes, apartment buildings, laundries and swimming pools. Some twenty-five thousand of these units are employed in Florida and they are gradually coming into vogue in California.

Some of the most impressive advances in the use of solar energy have occurred in industry, although the majority of these applications are marginal at best and largely experimental in nature. The simplest is the solar furnace. The collector is usually a single large parabolic mirror, or, more likely, a huge array of many parabolic mirrors mounted in a large housing. A heliostat—a smaller, horizontally mounted mirror that follows the movement of the sun—reflects the rays into the collector. Several hundred of these furnaces are currently in use. One of the largest, Dr. Felix Trombe's Mont Louis furnace, develops seventy-five kilowatts of electric power and is used primarily in high-temperature research. Since the sun's rays do not contain any impurities, the furnace will melt a hundred pounds of metal without the contamination produced by conventional techniques. A solar furnace built by the U.S. Quartermaster Corps at Nattick, Massachusetts, develops five thousand degrees Centigrade—a temperature high enough to melt steel I-beams.

Solar furnaces have many limitations, but these are not insurmountable. The efficiency of the furnaces can be appreciably reduced by haze, fog, clouds and atmospheric dust, and also by heavy wind loadings which deflect equipment and interfere with the accurate focusing of the sun's rays. Attempts are being made to resolve some of these problems by sliding roofs, covering material for the mirrors, and firm, protective housings. On the other hand, solar furnaces are clean, they are efficient when they are in good working order, and they produce extremely high-grade metals which none of the conventional furnaces currently in use can match.

Equally promising as an area of research are current attempts to convert solar energy into electricity. Theoretically, an area roughly a square yard in size placed perpendicular to the sun's rays receives energy equivalent to one kilowatt. "Considering that in the arid zones of the world many millions of square meters of desert land are free for power production," observes Thirring, "we find that by utilizing only one percent of the available ground for solar plants a capacity could be reached far higher than the present installed capacity of all fuel-operated and hydroelectric power plants in the world." In practice, work along the lines suggested by Thirring has been inhibited by cost considerations, by market factors (there is no large demand for electricity in those underdeveloped, hot areas of the world where the project is most feasible) and by essentially the conservatism of designers in the power field. Research emphasis has been placed on the development of solar batteries—a result largely of work on the "space program."

Solar batteries are based on the thermoelectric effect. If strips of antimony and bismuth are joined in a loop, for example, a temperature differential made, say, by producing heat in onejunction, yields electric power. Research on solar batteries over the past decade or so resulted in devices that have a power-converting efficiency as high as fifteen percent, and twenty to twenty-five percent is quite attainable in the not too distant future Grouped in large panels, solar batteries have been used to power electric cars, small boats, telephone lines, radios, phonographs, clocks, sewing machines and other appliances. Eventually, the cost of producing solar batteries is expected to diminish to a point where they will provide electric power for homes and even small industrial facilities.

Finally, the sun's energy can be used in still another way—by collecting heat in a body of water. For some time now, engineers have been studying ways of acquiring electric power from the temperature differences produced by the sun's heat in the sea. Theoretically, a solar pond occupying a square kilometer could yield thirty million kilowatt-hours of electricity annually—enough to match the output of a sizeable power station operating more than twelve hours every day of the year. The power, as Henry Tabor observes, can be acquired without any fuel costs, "merely by the pond lying in the sun." Heat can be extracted from the bottom of the pond by passing the hot water over a heat exchanger and then returning the water to the pond. In warm latitudes, ten thousand square miles committed to this method of power production would provide enough electricity to satisfy the needs of four hundred million people!

The ocean's tides are still another untapped resource to which we could turn for electric power. We could trap the ocean's waters at high tide in a natural basin—say a bay or the mouth of a river—and release them through turbines at low tide. A number of places exist where the tides are high enough to produce electric power in large quantities. The French have already built an immense tidal-power installation near the mouth of the Ranee River at St. Malo with an expected net yield of 544 million kilowatt-hours annually. They also plan to build another dam in the bay of Mont-Saint-Michel. In England, highly suitable conditions for a tidal dam exist above the confluence of the Severn and Wye rivers. A dam here could provide the electric power produced by a million tons of coal annually. A superb location for producing tide-generated electricity exists at Passamaquoddy Bay on the border between Maine and New Brunswick, and good locales exist on the Mezen Gulf, a Russian coastal area in the Arctic. Argentina has plans for building a tidal dam across the estuary of the Deseado River near Puerto Desire on the Atlantic coast. Many other coastal areas could be used to generate electricity from tidal power, but except for France no country has started work on this resource.

We could use temperature differences in the sea or in the earth to generate electric power in sizeable quantities. A temperature differential as high as seventeen degrees Centigrade is not uncommon in the surface layers of tropical waters; along coastal areas of Siberia, winter differences of thirty degrees exist between water below the ice crust and the air. The interior of the earth becomes progressively warmer as we descend, providing selective temperature differentials with respect to the surface. Heat pumps could be used to avail ourselves of these differentials for industrial purposes or to heat homes. The heat pump works like a mechanical refrigerator: a circulating refrigerant draws off heat from a medium, dissipates it, and returns to repeat the

process. During winter months, the pumps, circulating a refrigerant in a shallow well, could be used to absorb subsurface heat and release it in a house. In the summer the process could be reversed: heat withdrawn from the house could be dissipated in the earth. The pumps do not require costly chimneys, they do not pollute the atmosphere, and they eliminate the nuisance of stoking furnaces and carrying out ashes. If we could acquire electricity or direct heat from solar energy, wind power or temperature differentials, the heating system of a home or factory would be completely self-sustaining; it would not drain valuable hydrocarbon resources or require external sources of supply.

Winds could also be used to provide electric power in many areas of the world. About one-fortieth of the solar energy reaching the earth's surface is converted into wind. Although much of this goes into making the jet stream, a great deal of wind energy is available a few hundred feet above the ground. A UN report, using monetary terms to gauge the feasibility of wind power, finds that efficient wind plants in many areas could produce electricity at an overall cost of five mills per kilowatt-hour, a figure that approximates the price of commercially generated electric power. Several wind generators have already been used with success. The famous 1,250 kilowatt generator at Grandpa's Knob near Rutland, Vermont, successfully fed alternating current into the lines of the Central Vermont Public Service Co. until a parts shortage during World War II made it difficult to keep the installation in good repair. Since then, larger, more efficient generators have been designed. P. H. Thomas, working for the Federal Power Commission, has designed a 7,500 kilowatt windmill that would provide electricity at a capital investment of $68 per kilowatt. Eugene Ayres notes that if the construction costs of Thomas's windmill were double the amount estimated by its designer, "wind turbines would seem nevertheless to compare favorably with hydroelectric installations which cost around $300 per kilowatt." An enormous potential for generating electricity by means of wind power exists in many regions of the world. In England, for example, where a careful three-year survey was made of possible wind-power sites, it was found that the newer wind turbines could generate several million kilowatts, saving from two to four million tons of coal annually.

There should be no illusions about the extraction of trace minerals from rocks, about solar and wind power, or about the use of heat pumps. Except perhaps for tidal power and the extraction of raw materials from the sea, these sources cannot supply man with the bulky quantities of raw materials and the large blocks of energy needed to sustain densely concentrated populations and highly centralized industries. Solar devices, wind turbines, and heat pumps will produce relatively small quantities of power. Used locally and in conjunction with each other, they could probably meet all the power needs of small communities, but we cannot foresee a time when they will be able to furnish the electricity currently used by cities the size of New York, London or Paris.

Limitation of scope, however, could represent a profound advantage from an ecological point of view. The sun, the wind and the earth are experiential realities to which men have responded sensuously and reverently from time immemorial. Out of these primal elements man developed his sense of dependence on—and respect for—the natural environment, a dependence that kept his destructive activities in check. The Industrial Revolution and the urbanized world that followed obscured nature's role in human experience—hiding the sun with a pall of smoke, blocking the

winds with massive buildings, desecrating the earth with sprawling cities. Man's dependence on the natural world became invisible; it became theoretical and intellectual in character, the subject matter of textbooks, monographs and lectures. True, this theoretical dependence supplied us with insights (partial ones at best) into the natural world, but its one sidedness robbed us of all sensuous dependence on and all visible contact and unity with nature. In losing these, we lost a part of ourselves as feeling beings. We became alienated from nature. Our technology and environment became totally inanimate, totally synthetic—a purely inorganic physical milieu that promoted the deanimization of man and his thought.

To bring the sun, the wind, the earth, indeed the world of life, back into technology, into the means of human survival, would be a revolutionary renewal of man's ties to nature. To restore this dependence in away that evoked a sense of regional uniqueness in each community—a sense not only of generalized dependence but of dependence on a specific region with distinct qualities of its own—would give this renewal a truly ecological character. A real ecological system would emerge, a delicately interlaced pattern of local resources, honored by continual study and artful modification. With the growth of a true sense of regionalism every resource would find its place in a natural, stable balance, an organic unity of social, technological and natural elements. Art would assimilate technology by becoming social art, the art of the community as a whole. The free community would be able to rescale the tempo of life, the work patterns of man, its own architecture and its systems of transportation and communication to human dimensions. The electric car, quiet, slow-moving and clean, would become the preferred mode of urban transportation, replacing the noisy, filthy, highspeed automobile. Monorails would link community to community, reducing the number of highways that scar the countryside. Crafts would regain their honored position as supplements to mass manufacture; they would become a form of domestic, day-to-day artistry. A high standard of excellence, I believe, would replace the strictly quantitative criteria of production that prevail today; a respect for the durability of goods and the conservation of raw materials would replace the shabby, huckster-oriented criteria that result in built-in obsolescence and an insensate consumer society. The community would become a beautifully molded arena of life, a vitalizing source of culture and a deeply personal, ever-nourishing source of human solidarity.

Technology for Life

In a future revolution, the most pressing task of technology will be to produce a surfeit of goods with a minimum of toil. The immediate purpose of this task will be to open the social arena permanently to the revolutionary people, to keep the revolution in permanence. Thus far every social revolution has foundered because the peal of the tocsin could not be heard over the din of the workshop. Dreams of freedom and plenty were polluted by the mundane, workaday responsibility of producing the means of survival. Looking back at the brute facts of history, we find that as long as revolution meant continual sacrifice and denial for the people, the reins of power fell into the hands of the political "professionals," the mediocrities of Thermidor. How well the liberal Girondins of the French Convention understood this reality can be judged by their effort to reduce the revolutionary fervor of the Parisian popular assemblies—the great sections of 1793—by decreeing that the meetings should close "at ten in the evening," or, as Carlyle tells us, "before

the working people come...” from their jobs. The decree proved ineffective, but it was well aimed. Essentially, the tragedy of past revolutions has been that, sooner or later, their doors closed, “at ten in the evening.” The most critical function of modern technology must be to keep the doors of the revolution open forever!

Nearly a half century ago, while Social-Democratic and Communist theoreticians babbled about a society with “work for all,” the Dadaists, those magnificent madmen, demanded unemployment for everybody. The decades have detracted nothing from the significance of this demand, and they have added to its content. From the moment toil is reduced to the barest possible minimum or disappears entirely, the problems of survival pass into the problems of life, and technology itself passes from being the servant of man’s immediate needs to being the partner of his creativity.

Let us look at this matter closely. Much has been written about technology as an “extension of man.” The phrase is misleading if it is meant to apply to technology as a whole. It has validity primarily for the traditional handicraft shop and, perhaps, for the early stages of machine development. The craftsman dominates his tool; his labor, artistic inclinations, and personality are the sovereign factors in the productive process. Labor is not merely an expenditure of energy; it is also the personalized work of a man whose activities are sensuously directed toward preparing his product, fashioning it, and finally decorating it for human use. The craftsman guides the tool, not the tool the craftsman. Whatever alienation may exist between the craftsman and his product is immediately overcome, as Friedrich Wilhelmsen emphasized, “by an artistic judgment—a judgment bearing on a thing to be made.” The tool amplifies the powers of the craftsman as a human; it amplifies his power to exercise his artistry and impart his identity as a creative being to raw materials.

The development of the machine tends to rupture the intimate relationship between man and the means of production. It assimilates the worker to preset industrial tasks, tasks over which he exercises no control. The machine now appears as an alien force—apart from and yet wedded to the production of the means of survival. Although initially an “extension of man,” technology is transformed into a force above man, orchestrating his life according to a score contrived by an industrial bureaucracy; not men, I repeat, but a bureaucracy, a social machine. With the arrival of mass production as the predominant mode of production, man became an extension of the machine, and not only of mechanical devices in the productive process but also of social devices in the social process. When he becomes an extension of a machine, man ceases to exist for his own sake. Society is ruled by the harsh maxim: “production for the sake of production.” The decline from craftsman to worker, from an active to an increasingly passive personality, is completed by man qua consumer—an economic entity whose tastes, values, thoughts and sensibilities are engineered by bureaucratic “teams” in “think tanks.” Man, standardized by machines, is reduced to a machine.

Man-the-machine is the bureaucratic ideal. It is an ideal that is continually defied by the rebirth of life, by the reappearance of the young, and by the contradictions that unsettle the bureaucracy. Every generation has to be assimilated again, and each time with explosive resistance. The bureaucracy, in turn, never lives up to its own technical ideal. Congested with mediocrities, it errs continually. Its judgment lags behind new situations; insensate, it suffers from social inertia and is

always buffeted by chance. Any crack that opens in the social machine is widened by the forces of life.

How can we heal the fracture that separates living men from dead machines without sacrificing either men or machines? How can we transform a technology for survival into a technology for life? To answer any of these questions with Olympian assurance would be idiotic. The future liberated men will choose from a large variety of mutually exclusive or combinable work styles, all of which will be based on unforeseeable technological innovations. Or these humans of the future may simply choose to step over the body of technology. They may submerge the cybernated machine in a technological underworld, divorcing it entirely from social life, the community and creativity. All but hidden from society, the machines would work for man. Free communities would stand at the end of a cybernated assembly line with baskets to cart the goods home. Industry, like the autonomic nervous system, would work on its own, subject to the repairs that our own bodies require in occasional bouts of illness. The fracture separating man from machine would not be healed. It would simply be ignored.

Ignoring technology, of course, is no solution. Man would be closing off a vital human experience—the stimulus of productive activity, the stimulus of the machine. Technology can play a vital role informing the personality of man. Every art, as Lewis Mumford has argued, has its technical side, requiring the self-mobilization of spontaneity into expressed order and providing contact with the objective world during the most ecstatic moments of experience.

A liberated society, I believe, will not want to negate technology precisely because it is liberated and can strike a balance. It may well want to assimilate the machine to artistic craftsmanship. By this I mean the machine will remove the toil from the productive process, leaving its artistic completion to man. The machine, in effect, will participate in human creativity. There is no reason why automatic, cybernated machinery cannot be used so that the finishing of products, especially those destined for personal use, is left to the community. The machine can absorb the toil involved in mining, smelting, transporting and shaping raw materials, leaving the final stages of artistry and craftsmanship to the individual. Most of the stones that make up a medieval cathedral were carefully squared and standardized to facilitate their laying and bonding—a thankless, repetitive and boring task that can now be done rapidly and effortlessly by modern machines. Once the stone blocks were set in place, the craftsmen made their appearance; toil was replaced by creative human work. In a liberated community the combination of industrial machines and the craftsman's tools could reach a degree of sophistication and of creative interdependence unparalleled in any period in human history. William Morris's vision of a return to craftsmanship would be freed of its nostalgic nuances. We could truly speak of a qualitatively new advance in technics—a technology for life.

Having acquired a vitalizing respect for the natural environment and its resources, the free decentralized community would give a new interpretation to the word "need." Marx's "realm of necessity," instead of expanding indefinitely, would tend to contract; needs would be humanized and scaled by a higher valuation of life and creativity. Quality and artistry would supplant the current emphasis on quantity and standardization; durability would replace the current emphasis on expendability; an economy of cherished things, sanctified by a sense of tradition and by a sense

of wonder for the personality and artistry of dead generations, would replace the mindless seasonal restyling of commodities; innovations would be made with a sensitivity for the natural inclinations of man as distinguished from the engineered pollution of taste by the mass media. Conservation would replace waste in all things. Freed of bureaucratic manipulation, men would rediscover the beauty of a simpler, uncluttered material life. Clothing, diet, furnishings and homes would become more artistic, more personalized and more Spartan. Man would recover a sense of the things that are for man, as against the things that have been imposed upon man. The repulsive ritual of bargaining and hoarding would be replaced by the sensitive acts of making and giving. Things would cease to be the crutches for an impoverished ego and the mediators between aborted personalities; they would become the products of rounded, creative individuals and the gifts of integrated, developing selves.

A technology for life could play the vital role of integrating one community with another. Rescaled to a revival of crafts and a new conception of material needs, technology could also function as the sinews of confederation. A national division of labor and industrial centralization are dangerous because technology begins to transcend the human scale; it becomes increasingly incomprehensible and lends itself to bureaucratic manipulation. To the extent that a shift away from community control occurs in real material terms (technologically and economically), centralized institutions acquire real power over the lives of men and threaten to become sources of coercion. A technology for life must be based on the community; it must be tailored to the community and the regional level. On this level, however, the sharing of factories and resources could actually promote solidarity between community groups; it could serve to confederate them on the basis not only of common spiritual and cultural interests but also of common material needs. Depending upon the resources and uniqueness of regions, a rational, humanistic balance could be struck between autarky, industrial confederation, and a national division of labor.

Is society so "complex" that an advanced industrial civilization stands in contradiction to a decentralized technology for life? My answer to this question is a categorical no. Much of the social "complexity" of our time originates in the paperwork, administration, manipulation and constant wastefulness of capitalist enterprise. The petty bourgeois stands in awe of the bourgeois filing system—the rows of cabinets filled with invoices, accounting books, insurance records, tax forms and the inevitable dossiers. He is spellbound by the "expertise" of industrial managers, engineers, stylemongers, financial manipulators, and the architects of market consent. He is totally mystified by the state—the police, courts, jails, federal offices, secretariats, the whole stinking, sick body of coercion, control and domination. Modern society is incredibly complex, complex even beyond human comprehension, if we grant its premises—property, "production for the sake of production," competition, capital accumulation, exploitation, finance, centralization, coercion, bureaucracy and the domination of man by man. Linked to every one of these premises are the institutions that actualize it—offices, millions of "personnel," forms, immense tons of paper, desks, typewriters, telephones, and, of course, rows upon rows of filing cabinets. As in Kafka's novels, these things are real but strangely dreamlike, indefinable shadows on the social landscape. The economy has a greater reality to it and is easily mastered by the mind and senses, but it too is highly intricate—if we grant that buttons must be styled in a thousand different forms, textiles varied endlessly in kind and pattern to create the illusion of innovation and novelty, bathrooms

filled to overflowing with a dazzling variety of pharmaceuticals and lotions, and kitchens cluttered with an endless number of imbecile appliances. If we single out of this odious garbage one or two goods of high quality in the more useful categories and if we eliminate the money economy, the state power, the credit system, the paperwork and the policework required to hold society in an enforced state of want, insecurity and domination, society would not only become reasonably human but also fairly simple.

I do not wish to belittle the fact that behind a single yard of high quality electric wiring lies a copper mine, the machinery needed to operate it, a plant for producing insulating material, a copper smelting and shaping complex, a transportation system for distributing the wiring—and behind each of these complexes other mines, plants, machine shops and so forth. Copper mines, certainly of a kind that can be exploited by existing machinery, are not to be found everywhere, although enough copper and other useful metals can be recovered as scrap from the debris of our present society to provide future generations with all they need. But let us grant that copper will fall within the sizeable category of material that can be furnished only by a nationwide system of distribution. In what sense need there be a division of labor in the current sense of the term? There need be none at all. First, copper can be distributed, together with other goods, among free, autonomous communities, be they those that mine it or those that require it. This distribution system need not require the mediation of centralized bureaucratic institutions. Second, and perhaps more significant, a community that lives in a region with ample copper resources would not be a mere mining community. Copper mining would be one of the many economic activities in which it was engaged—a part of a larger, rounded, organic economic arena. The same would hold for communities whose climate was most suitable for growing specialized foods or whose resources were rare and uniquely valuable to society as a whole. Every community would approximate local or regional autarky. It would seek to achieve wholeness, because wholeness produces complete, rounded men who live in symbiotic relationship with their environment. Even if a substantial portion of the economy fell within the sphere of a national division of labor, the overall economic weight of society would still rest with the community. If there is no distortion of communities, there will be no sacrifice of any portion of humanity to the interests of humanity as a whole.

A basic sense of decency, sympathy and mutual aid lies at the core of human behavior. Even in this lousy bourgeois society we do not find it unusual that adults will rescue children from danger although the act may imperil their lives; we do not find it strange that miners, for example, will risk death to save their fellow workers in cave-ins or that soldiers will crawl under heavy fire to carry a wounded comrade to safety. W hat tends to shock us are those occasions when aid is refused—when the cries of a girl who has been stabbed and is being murdered are ignored in a middle-class neighborhood.

Yet there is nothing in this society that would seem to warrant a molecule of solidarity. What solidarity we do find exists despite the society, against all its realities, as an unending struggle between the innate decency of man and the innate indecency of society. Can we imagine how men would behave if this decency could find full release, if society earned the respect, even the love, of the individual? We are still the offspring of a violent, blood-soaked, ignoble history—the end products of man's domination of man. We may never end this condition of domination. The future

may bring us and our shoddy civilization down in a Wagnerian Gütterdämmerung. How idiotic it would all be! But we may also end the domination of man by man. We may finally succeed in breaking the chain to the past and gain a humanistic, anarchist society. Would it not be the height of absurdity, indeed of impudence, to gauge the behavior of future generations by the very criteria we despise in our own time? Free men will not be greedy, one liberated community will not try to dominate another because it has a potential monopoly of copper, computer "experts" will not try to enslave grease monkeys, and sentimental novels about pining, tubercular virgins will not be written. We can ask only one thing of the free men and women of the future: to forgive us that it took so long and that it was such a hard pull. Like Brecht, we can ask that they try not to think of us too harshly, that they give us their sympathy and understand that we lived in the depths of a social hell.

But then, they will surely know what to think without our telling them.

The Communalist Project - Murray Bookchin (Social Ecology and Communalism, 2006)

Whether the twenty-first century will be the most radical of times or the most reactionary — or will simply lapse into a gray era of dismal mediocrity — will depend overwhelmingly upon the kind of social movement and program that social radicals create out of the theoretical, organizational, and political wealth that has accumulated during the past two centuries of the revolutionary era. The direction we select, from among several intersecting roads of human development, may well determine the future of our species for centuries to come. As long as this irrational society endangers us with nuclear and biological weapons, we cannot ignore the possibility that the entire human enterprise may come to a devastating end. Given the exquisitely elaborate technical plans that the military-industrial complex has devised, the self- extermination of the human species must be included in the futuristic scenarios that, at the turn of the millennium, the mass media are projecting — the end of a human future as such.

Lest these remarks seem too apocalyptic, I should emphasize that we also live in an era when human creativity, technology, and imagination have the capability to produce extraordinary material achievements and to endow us with societies that allow for a degree of freedom that far and away exceeds the most dramatic and emancipatory visions projected by social theorists such as Saint- Simon, Charles Fourier, Karl Marx, and Peter Kropotkin. Many thinkers of the postmodern age have obtusely singled out science and technology as the principal threats to human well-being, yet few disciplines have imparted to humanity such a stupendous knowledge of the innermost secrets of matter and life, or provided our species better with the ability to alter every important feature of reality and to improve the well-being of human and nonhuman life-forms.

We are thus in a position either to follow a path toward a grim "end of history," in which a banal succession of vacuous events replaces genuine progress, or to move on to a path toward the true making of history, in which humanity genuinely progresses toward a rational world. We are in a position to choose between an ignominious finale, possibly including the catastrophic nuclear oblivion of history itself, and history's rational fulfillment in a free, materially abundant society in an aesthetically crafted environment.

Notwithstanding the technological marvels that competing enterprises of the ruling class (that is, the bourgeoisie) are developing in order to achieve hegemony over one another, little of a subjective nature that exists in the existing society can redeem it. Precisely at a time when we, as a species, are capable of producing the means for amazing objective advances and improvements in the human condition and in the nonhuman natural world — advances that could make for a free and rational society — we stand almost naked morally before the onslaught of social forces that may very well lead to our physical immolation. Prognoses about the future are understandably very fragile and are easily distrusted. Pessimism has become very widespread, as capitalist social relations become more deeply entrenched in the human mind than ever before, and as culture regresses appallingly, almost to a vanishing point. To most people today, the hopeful and very radical certainties of the twenty-year period between the Russian Revolution of 1917–18 and the end of the Spanish Civil War in 1939 seem almost naïve.

Yet our decision to create a better society, and our choice of the way to do it, must come from within ourselves, without the aid of a deity, still less a mystical "force of nature" or a charismatic leader. If we choose the road toward a better future, our choice must be the consequence of our ability — and ours alone — to learn from the material lessons of the past and to appreciate the real prospects of the future. We will need to have recourse, not to ghostly vagaries conjured up from the murky hell of superstition or, absurdly, from the couloirs of the academy, but to the innovative attributes that make up our very humanity and the essential features that account for natural and social development, as opposed to the social pathologies and accidental events that have sidetracked humanity from its self-fulfillment in consciousness and reason. Having brought history to a point where nearly everything is possible, at least of a material nature — and having left behind a past that was permeated ideologically by mystical and religious elements produced by the human imagination — we are faced with a new challenge, one that has never before confronted humanity. We must consciously create our own world, not according to demonic fantasies, mindless customs, and destructive prejudices, but according to the canons of reason, reflection, and discourse that uniquely belong to our own species.

Capitalism, Classes, and Hierarchies

What factors should be decisive in making our choice? First, of great significance is the immense accumulation of social and political experience that is available to revolutionaries today, a storehouse of knowledge that, properly conceived, could be used to avoid the terrible errors that our predecessors made and to spare humanity the terrible plagues of failed revolutions in the past. Of indispensable importance is the potential for a new theoretical springboard that has been created by the history of ideas, one that provides the means to catapult an emerging radical movement beyond existing social conditions into a future that fosters humanity's emancipation.

But we must also be fully aware of the scope of the problems that we face. We must understand with complete clarity where we stand in the development of the prevailing capitalist order, and we have to grasp emergent social problems and address them in the program of a new movement. Capitalism is unquestionably the most dynamic society ever to appear in history. By definition, to be sure, it always remains a system of commodity exchange in which objects that are made for sale and profit pervade and mediate most human relations. Yet capitalism is also a highly mutable

system, continually advancing the brutal maxim that whatever enterprise does not grow at the expense of its rivals must die. Hence "growth" and perpetual change become the very laws of life of capitalist existence. This means that capitalism never remains permanently in only one form; it must always transform the institutions that arise from its basic social relations.

Although capitalism became a dominant society only in the past few centuries, it long existed on the periphery of earlier societies: in a largely commercial form, structured around trade between cities and empires; in a craft form throughout the European Middle Ages; in a hugely industrial form in our own time; and if we are to believe recent seers, in an informational form in the coming period. It has created not only new technologies but also a great variety of economic and social structures, such as the small shop, the factory, the huge mill, and the industrial and commercial complex. Certainly the capitalism of the Industrial Revolution has not completely disappeared, any more than the isolated peasant family and small craftsman of a still earlier period have been consigned to complete oblivion. Much of the past is always incorporated into the present; indeed, as Marx insistently warned, there is no "pure capitalism," and none of the earlier forms of capitalism fade away until radically new social relations are established and become overwhelmingly dominant. But today capitalism, even as it coexists with and utilizes precapitalist institutions for its own ends (see Marx's Grundrisse for this dialectic), now reaches into the suburbs and the countryside with its shopping malls and newly styled factories. Indeed, it is by no means inconceivable that one day it will reach beyond our planet. In any case, it has produced not only new commodities to create and feed new wants but new social and cultural issues, which in turn have given rise to new supporters and antagonists of the existing system. The famous first part of Marx and Engels's Communist Manifesto, in which they celebrate capitalism's wonders, would have to be periodically rewritten to keep pace with the achievements — as well as the horrors — produced by the bourgeoisie's development.

One of the most striking features of capitalism today is that in the Western world the highly simplified two-class structure- the bourgeoisie and the proletariat-that Marx and Engels, in T he Communist Manifesto, predicted would become dominant under "mature" capitalism (and we have yet to determine what "mature," still less "late" or "moribund" capitalism actually is) has undergone a process of reconfiguration. The conflict between wage labor and capital, while it has by no means disappeared, nonetheless lacks the all-embracing importance that it possessed in the past. Contrary to Marx's expectations, the industrial working class is now dwindling in numbers and is steadily losing its traditional identity as a class — which by no means excludes it from a potentially broader and perhaps more extensive conflict of society as a whole against capitalist social relations. Present-day culture, social relations, cityscapes, modes of production, agriculture, and transportation have remade the traditional proletariat, upon which syndicalists and Marxists were overwhelmingly, indeed almost mystically focused, into a largely petty-bourgeois stratum whose mentality is marked by its own bourgeois utopianism of "consumption for the sake of consumption." We can foresee a time when the proletarian, whatever the color of his or her collar or place on the assembly line, will be completely replaced by automated and even miniaturized means of production that are operated by a few white-coated manipulators of machines and by computers.

By the same token, the living standards of the traditional proletariat and its material expectations (no small factor in the shaping of social consciousness!) have changed enormously, soaring within only a generation or two from near poverty to a comparatively high degree of material affluence. Among the children and grandchildren of former steel and automobile workers and coal miners, who have no proletarian class identity, a college education has replaced the high school diploma as emblematic of a new class status. In the United States once-opposing class interests have converged to a point that almost 50 percent of American households own stocks and bonds, while a huge number are proprietors of one kind or another, possessing their own homes, gardens, and rural summer retreats.

Given these changes, the stern working man or woman, portrayed in radical posters of the past with a flexed, highly muscular arm holding a bone-crushing hammer, has been replaced by the genteel and well-mannered (so-called) "working middle class." The traditional cry "Workers of the world, unite!" in its old historical sense becomes ever more meaningless. The class-consciousness of the proletariat, which Marx tried to awaken in The Communist Manifesto, has been hemorrhaging steadily and in many places has virtually disappeared. The more existential class struggle has not been eliminated, to be sure, any more than the bourgeoisie could eliminate gravity from the existing human condition, but unless radicals today become aware of the fact that it has been narrowed down largely to the individual factory or office, they will fail to see that a new, perhaps more expansive form of social consciousness can emerge in the generalized struggles that face us. Indeed, this form of social consciousness can be given a refreshingly new meaning as the concept of the rebirth of the citoyen — a concept so important to the Great Revolution of 1789 and its more broadly humanistic sentiment of sociality that it became the form of address among later revolutionaries summoned to the barricades by the heraldic crowing of the red French rooster.

Seen as a whole, the social condition that capitalism has produced today stands very much at odds with the simplistic class prognoses advanced by Marx and by the revolutionary French syndicalists. After the Second World War, capitalism underwent an enormous transformation, creating broad new social issues with extraordinary rapidity, issues that went beyond traditional proletarian demands for improved wages, hours, and working conditions: notably environmental, gender, hierarchical, civic, and democratic issues. Capitalism, in effect, has generalized its threats to humanity, particularly with climatic changes that may alter the very face of the planet, oligarchical institutions of a global scope, and rampant urbanization that radically corrodes the civic life basic to grassroots politics.

Hierarchy, today, is becoming as pronounced an issue as class — as witness the extent to which many social analyses have singled out managers, bureaucrats, scientists, and the like as emerging, ostensibly dominant groups. New and elaborate gradations of status and interests count today to an extent that they did not in the recent past; they blur the conflict between wage labor and capital that was once so central, clearly defined, and militantly waged by traditional socialists. Class categories are now intermingled with hierarchical categories based on race, gender, sexual preference, and certainly national or regional differences. Status differentiations, characteristic of hierarchy, tend to converge with class differentiations, and a more all-inclusive capitalistic world is emerging in which ethnic, national, and gender differences often surpass the importance of class

differences in the public eye. This phenomenon is not entirely new: in the First World War countless German socialist workers cast aside their earlier commitment to the red flags of proletarian unity in favor of the national flags of their well-fed and parasitic rulers and went on to plunge bayonets into the bodies of French and Russian socialist workers — as they did, in turn, under the national flags of their own oppressors.

At the same time capitalism has produced a new, perhaps paramount contradiction: the clash between an economy based on unending growth and the desiccation of the natural environment. This issue and its vast ramifications can no more be minimized, let alone dismissed, than the need of human beings for food or air. At present the most promising struggles in the West, where socialism was born, seem to be waged less around income and working conditions than around nuclear power, pollution, deforestation, urban blight, education, health care, community life, and the oppression of people in underdeveloped countries-as witness the (albeit sporadic) antiglobalization upsurges, in which blue- and white-collar "workers" march in the same ranks with middle-class humanitarians and are motivated by common social concerns. Proletarian combatants become indistinguishable from middle- class ones. Burly workers, whose hallmark is a combative militancy, now march behind "bread and puppet" theater performers, often with a considerable measure of shared playfulness. Members of the working and middle classes now wear many different social hats, so to speak, challenging capitalism obliquely as well as directly on cultural as well as economic grounds.

Nor can we ignore, in deciding what direction we are to follow, the fact that capitalism, if it is not checked, will in the future-and not necessarily the very distant future — differ appreciably from the system we know today. Capitalist development can be expected to vastly alter the social horizon in the years ahead. Can we suppose that factories, offices, cities, residential areas, industry, commerce, and agriculture, let alone moral values, aesthetics, media, popular desires, and the like will not change immensely before the twenty-first century is out? In the past century, capitalism, above all else, has broadened social issues — indeed, the historical social question of how a humanity, divided by classes and exploitation, will create a society based on equality, the development of authentic harmony, and freedom — to include those whose resolution was barely foreseen by the liberatory social theorists in the nineteenth and early twentieth centuries. Our age, with its endless array of "bottom lines" and "investment choices," now threatens to turn society itself into a vast and exploitative marketplace.

The public with which the progressive socialist had to deal is also changing radically and will continue to do so in the coming decades. To lag in understanding behind the changes that capitalism is introducing and the new or broader contradictions it is producing would be to commit the recurringly disastrous error that led to the defeat of nearly all revolutionary upsurges in the past two centuries. Foremost among the lessons that a new revolutionary movement must learn from the past is that it must win over broad sectors of the middle class to its new populist program. No attempt to replace capitalism with socialism ever had or will have the remotest chance of success without the aid of the discontented petty bourgeoisie, whether it was the intelligentsia and peasantry-in-uniform of the Russian Revolution or the intellectuals, farmers, shopkeepers, clerks, and managers in industry and even in government in the German upheavals of 1918–21. Even

during the most promising periods of past revolutionary cycles, the Bolsheviks, Mensheviks, the German Social Democrats, and Russian Communists never acquired absolute majorities in their respective legislatives bodies. So-called "proletarian revolutions" were invariably minority revolutions, usually even within the proletariat itself, and those that succeeded (often briefly, before they were subdued or drifted historically out of the revolutionary movement) depended overwhelmingly on the fact that the bourgeoisie lacked active support among its own military forces or was simply socially demoralized.

Marxism, Anarchism and Syndicalism

Given the changes that we are witnessing and those that are still taking form, social radicals can no longer oppose the predatory (as well as immensely creative) capitalist system by using the ideologies and methods that were born in the first Industrial Revolution, when a factory proletarian seemed to be the principal antagonist of a textile plant owner. (Nor can we use ideologies that were spawned by conflicts that an impoverished peasantry used to oppose feudal and semifeudal landowners.) None of the professedly anticapitalist ideologies of the past — Marxism, anarchism, syndicalism, and more generic forms of socialism — retain the same relevance that they had at an earlier stage of capitalist development and in an earlier period of technological advance. Nor can any of them hope to encompass the multitude of new issues, opportunities, problems, and interests that capitalism has repeatedly created over time.

Marxism was the most comprehensive and coherent effort to produce a systematic form of socialism, emphasizing the material as well as the subjective historical preconditions of a new society. This project, in the present era of precapitalist economic decomposition and of intellectual confusion, relativism, and subjectivism, must never surrender to the new barbarians, many of whom find their home in what was once a barrier to ideological regression-the academy. We owe much to Marx's attempt to provide us with a coherent and stimulating analysis of the commodity and commodity relations, to an activist philosophy, a systematic social theory, an objectively grounded or "scientific" concept of historical development, and a flexible political strategy. Marxist political ideas were eminently relevant to the needs of a terribly disoriented proletariat and to the particular oppressions that the industrial bourgeoisie inflicted upon it in England in the 1840s, somewhat later in France, Italy, and Germany, and very presciently in Russia in the last decade of Marx's life. Until the rise of the populist movement in Russia (most famously, the Narodnaya Volya), Marx expected the emerging proletariat to become the great majority of the population in Europe and North America, and to inevitably engage in revolutionary class war as a result of capitalist exploitation and immiseration. And especially between 1917 and 1939, long after Marx's death, Europe was indeed beleaguered by a mounting class war that reached the point of outright workers' insurrections. In 1917, owing to an extraordinary confluence of circumstances — particularly with the outbreak of the First World War, which rendered several quasi-feudal European social systems terribly unstable — Lenin and the Bolsheviks tried to use (but greatly altered) Marx's writings in order to take power in an economically backward empire, whose size spanned eleven time zones across Europe and Asia.

But for the most part, as we have seen, Marxism's economic insights belonged to an era of emerging factory capitalism in the nineteenth century. Brilliant as a theory of the material

preconditions for socialism, it did not address the ecological, civic, and subjective forces or the efficient causes that could impel humanity into a movement for revolutionary social change. On the contrary, for nearly a century Marxism stagnated theoretically. Its theorists were often puzzled by developments that have passed it by and, since the 1960s, have mechanically appended environmentalist and feminist ideas to its formulaic ouvrierist outlook.

By the same token, anarchism — which, I believe, represents in its authentic form a highly individualistic outlook that fosters a radically unfettered lifestyle, often as a substitute for mass action-is far better suited to articulate a Proudhonian single-family peasant and craft world than a modern urban and industrial environment. I myself once used this political label, but further thought has obliged me to conclude that, its often-refreshing aphorisms and insights notwithstanding, it is simply not a social theory. Its foremost theorists celebrate its seeming openness to eclecticism and the liberatory effects of "paradox" or even "contradiction," to use Proudhonian hyperbole. Accordingly, and without prejudice to the earnestness of many anarchistic practices, a case can made that many of the ideas of social and economic reconstruction that in the past have been advanced in the name of "anarchy" were often drawn from Marxism (including my own concept of "post-scarcity," which understandably infuriated many anarchists who read my essays on the subject). Regrettably, the use of socialistic terms has often prevented anarchists from telling us or even understanding clearly what they are: individualists whose concepts of autonomy originate in a strong commitment to personal liberty rather than to social freedom, or socialists committed to a structured, institutionalized, and responsible form of social organization. Indeed the history of this "ideology" is peppered with idiosyncratic acts of defiance that verge on the eccentric, which not surprisingly have attracted many young people and aesthetes.

In fact anarchism represents the most extreme formulation of liberalism's ideology of unfettered autonomy, culminating in a celebration of heroic acts of defiance of the state. Anarchism's mythos of self-regulation (auto nomos) — the radical assertion of the individual over or even against society and the personalistic absence of responsibility for the collective welfare — leads to a radical affirmation of the all-powerful will so central to Nietzsche's ideological peregrinations. Some self-professed anarchists have even denounced mass social action as futile and alien to their private concerns and made a fetish of what the Spanish anarchists called grupismo, a small-group mode of action that is highly personal rather than social.

Anarchism has often been confused with revolutionary syndicalism, a highly structured and well-developed mass form of libertarian trade unionism that, unlike anarchism, was long committed to democratic procedures, to discipline in action, and to organized, long-range revolutionary practice to eliminate capitalism. Its affinity with anarchism stems from its strong libertarian bias, but bitter antagonisms between anarchists and syndicalists have a long history in nearly every country in Western Europe and North America, as witness the tensions between the Spanish CNT and the anarchist groups associated with Tierra y Libertad early in the twentieth century; between the revolutionary syndicalist and anarchist groups in Russia during the 1917 revolution; and between the IWW in the United States and the SAC in Sweden, to cite the more illustrative cases in the history of the libertarian labor movement. More than one American anarchist was affronted by Joe Hill's defiant maxim on the eve of his execution in Utah: "Don't mourn — Organize!" Alas, small

groups were not quite the "organizations" that Joe Hill, or the grossly misunderstood idol of the Spanish libertarian movement, Salvador Seguí, had in mind. It was largely the shared word libertarian that made it possible for somewhat confused anarchists to coexist in the same organization with revolutionary syndicalists. It was often verbal confusion rather than ideological clarity that made possible the coexistence in Spain of the FAI, as represented by the anarchist Federica Montseny, with the syndicalists, as represented by Juan Prieto, in the CNT- FAI, a truly confused organization if ever there was one.

Revolutionary syndicalism's destiny has been tied in varying degrees to a pathology called ouvrierisme, or "workerism," and whatever philosophy, theory of history, or political economy it possesses has been borrowed, often piecemeal and indirectly, from Marx — indeed, Georges Sorel and many other professed revolutionary syndicalists in the early twentieth century expressly regarded themselves as Marxists and even more expressly eschewed anarchism. Moreover, revolutionary syndicalism lacks a strategy for social change beyond the general strike, which revolutionary uprisings such as the famous October and November general strikes in Russia during 1905 proved to be stirring but ultimately ineffectual. Indeed, as invaluable as the general strike may be as a prelude to direct confrontation with the state, they decidedly do not have the mystical capacity that revolutionary syndicalists assigned to them as means for social change. Their limitations are striking evidence that, as episodic forms of direct action, general strikes are not equatable with revolution nor even with profound social changes, which presuppose a mass movement and require years of gestation and a clear sense of direction. Indeed, revolutionary syndicalism exudes a typical ouvrierist anti-intellectualism that disdains attempts to formulate a purposive revolutionary direction and a reverence for proletarian "spontaneity" that, at times, has led it into highly self-destructive situations. Lacking the means for an analysis of their situation, the Spanish syndicalists (and anarchists) revealed only a minimal capacity to understand the situation in which they found themselves after their victory over Franco's forces in the summer of 1936 and no capacity to take "the next step" to institutionalize a workers' and peasants' form of government.

What these observations add up to is that Marxists, revolutionary syndicalists, and authentic anarchists all have a fallacious understanding of politics, which should be conceived as the civic arena and the institutions by which people democratically and directly manage their community affairs. Indeed the Left has repeatedly mistaken statecraft for politics by its persistent failure to understand that the two are not only radically different but exist in radical tension — in fact, opposition — to each other. As I have written elsewhere, historically politics did not emerge from the state — an apparatus whose professional machinery is designed to dominate and facilitate the exploitation of the citizenry in the interests of a privileged class. Rather, politics, almost by definition, is the active engagement of free citizens in the handling their municipal affairs and in their defense of its freedom. One can almost say that politics is the "embodiment" of what the French revolutionaries of the 1790s called civicisme. Quite properly, in fact, the word politics itself contains the Greek word for "city" or polis, and its use in classical Athens, together with democracy, connoted the direct governing of the city by its citizens. Centuries of civic degradation, marked particularly by the formation of classes, were necessary to produce the state and its corrosive absorption of the political realm.

A defining feature of the Left is precisely the Marxist, anarchist, and revolutionary syndicalist belief that no distinction exists, in principle, between the political realm and the statist realm.

By emphasizing the nation-state — including a "workers' state"- as the locus of economic as well as political power, Marx (as well as libertarians) notoriously failed to demonstrate how workers could fully and directly control such a state without the mediation of an empowered bureaucracy and essentially statist (or equivalently, in the case of libertarians, governmental) institutions. As a result, the Marxists unavoidably saw the political realm, which it designated a "workers' state," as a repressive entity, ostensibly based on the interests of a single class, the proletariat.

Revolutionary syndicalism, for its part, emphasized factory control by workers' committees and confederal economic councils as the locus of social authority, thereby simply bypassing any popular institutions that existed outside the economy. Oddly, this was economic determinism with a vengeance, which, tested by the experiences of the Spanish revolution of 1936, proved completely ineffectual. A vast domain of real governmental power, from military affairs to the administration of justice, fell to the Stalinists and the liberals of Spain, who used their authority to subvert the libertarian movement — and with it, the revolutionary achievements of the syndicalist workers in July 1936, or what was dourly called by one novelist "The Brief Summer of Spanish Anarchism."

As for anarchism, Bakunin expressed the typical view of its adherents in 1871 when he wrote that the new social order could be created "only through the development and organization of the nonpolitical or antipolitical social power of the working class in city and country," thereby rejecting with characteristic inconsistency the very municipal politics which he sanctioned in Italy around the same year. Accordingly, anarchists have long regarded every government as a state and condemned it accordingly — a view that is a recipe for the elimination of any organized social life whatever. While the state is the instrument by which an oppressive and exploitative class regulates and coercively controls the behavior of an exploited class by a ruling class, a government — or better still, a polity — is an ensemble of institutions designed to deal with the problems of consociational life in an orderly and hopefully fair manner. Every institutionalized association that constitutes a system for handling public affairs — with or without the presence of a state — is necessarily a government. By contrast, every state, although necessarily a form of government, is a force for class repression and control. Annoying as it must seem to Marxists and anarchist alike, the cry for a constitution, for a responsible and a responsive government, and even for law or nomos has been clearly articulated — and committed to print! — by the oppressed for centuries against the capricious rule exercised by monarchs, nobles, and bureaucrats. The libertarian opposition to law, not to speak of government as such, has been as silly as the image of a snake swallowing its tail. What remains in the end is nothing but a retinal afterimage that has no existential reality.

The issues raised in the preceding pages are of more than academic interest. As we enter the twenty-first century, social radicals need a socialism — libertarian and revolutionary — that is neither an extension of the peasant-craft "associationism" that lies at the core of anarchism nor the proletarianism that lies at the core of revolutionary syndicalism and Marxism. However fashionable the traditional ideologies (particularly anarchism) may be among young people today,

a truly progressive socialism that is informed by libertarian as well as Marxian ideas but transcends these older ideologies must provide intellectual leadership. For political radicals today to simply resuscitate Marxism, anarchism, or revolutionary syndicalism and endow them with ideological immortality would be obstructive to the development of a relevant radical movement. A new and comprehensive revolutionary outlook is needed, one that is capable of systematically addressing the generalized issues that may potentially bring most of society into opposition to an ever-evolving and changing capitalist system.

The clash between a predatory society based on indefinite expansion and nonhuman nature has given rise to an ensemble of ideas that has emerged as the explication of the present social crisis and meaningful radical change. Social ecology, a coherent vision of social development that intertwines the mutual impact of hierarchy and class on the civilizing of humanity, has for decades argued that we must reorder social relations so that humanity can live in a protective balance with the natural world.

Contrary to the simplistic ideology of "eco-anarchism," social ecology maintains that an ecologically oriented society can be progressive rather than regressive, placing a strong emphasis not on primitivism, austerity, and denial but on material pleasure and ease. If a society is to be capable of making life not only vastly enjoyable for its members but also leisurely enough that they can engage in the intellectual and cultural self-cultivation that is necessary for creating civilization and a vibrant political life, it must not denigrate technics and science but bring them into accord with visions of human happiness and leisure. Social ecology is an ecology not of hunger and material deprivation but of plenty; it seeks the creation of a rational society in which waste, indeed excess, will be controlled by a new system of values; and when or if shortages arise as a result of irrational behavior, popular assemblies will establish rational standards of consumption by democratic processes. In short, social ecology favors management, plans, and regulations formulated democratically by popular assemblies, not freewheeling forms of behavior that have their origin in individual eccentricities.

Communalism and Libertarian Municipalism

It is my contention that Communalism is the overarching political category most suitable to encompass the fully thought out and systematic views of social ecology, including libertarian municipalism and dialectical naturalism. As an ideology, Communalism draws on the best of the older Left ideologies-Marxism and anarchism, more properly the libertarian socialist tradition-while offering a wider and more relevant scope for our time. From Marxism, it draws the basic project of formulating a rationally systematic and coherent socialism that integrates philosophy, history, economics, and politics. Avowedly dialectical, it attempts to infuse theory with practice. From anarchism, it draws its commitment to antistatism and confederalism, as well as its recognition that hierarchy is a basic problem that can be overcome only by a libertarian socialist society.

The choice of the term Communalism to encompass the philosophical, historical, political, and organizational components of a socialism for the twenty-first century has not been a flippant one. The word originated in the Paris Commune of 1871, when the armed people of the French capital

raised barricades not only to defend the city council of Paris and its administrative substructures but also to create a nationwide confederation of cities and towns to replace the republican nation-state. Communalism as an ideology is not sullied by the individualism and the often explicit antirationalism of anarchism; nor does it carry the historical burden of Marxism's authoritarianism as embodied in Bolshevism.

It does not focus on the factory as its principal social arena or on the industrial proletariat as its main historical agent; and it does not reduce the free community of the future to a fanciful medieval village. Its most important goal is clearly spelled out in a conventional dictionary definition: Communalism, according to The American Heritage Dictionary of the English Language, is "a theory or system of government in which virtually autonomous local communities are loosely bound in a federation."

Communalism seeks to recapture the meaning of politics in its broadest, most emancipatory sense, indeed, to fulfill the historic potential of the municipality as the developmental arena of mind and discourse. It conceptualizes the municipality, potentially at least, as a transformative development beyond organic evolution into the domain of social evolution. The city is the domain where the archaic blood-tie that was once limited to the unification of families and tribes, to the exclusion of outsiders, was-juridically, at least-dissolved. It became the domain where hierarchies based on parochial and sociobiological attributes of kinship, gender, and age could be eliminated and replaced by a free society based on a shared common humanity. Potentially, it remains the domain where the once-feared stranger can be fully absorbed into the community-initially as a protected resident of a common territory and eventually as a citizen, engaged in making policy decisions in the public arena. It is above all the domain where institutions and values have their roots not in zoology but in civil human activity.

Looking beyond these historical functions, the municipality constitutes the only domain for an association based on the free exchange of ideas and a creative endeavor to bring the capacities of consciousness to the service of freedom. It is the domain where a mere animalistic adaptation to an existing and pregiven environment can be radically supplanted by proactive, rational intervention into the world — indeed, a world yet to be made and molded by reason- with a view toward ending the environmental, social, and political insults to which humanity and the biosphere have been subjected by classes and hierarchies. Freed of domination as well as material exploitation-indeed, recreated as a rational arena for human creativity in all spheres of life — the municipality becomes the ethical space for the good life. Communalism is thus no contrived product of mere fancy: it expresses an abiding concept and practice of political life, formed by a dialectic of social development and reason.

As a explicitly political body of ideas, Communalism seeks to recover and advance the development of the city (or commune) in a form that accords with its greatest potentialities and historical traditions. This is not to say that Communalism accepts the municipality as it is today. Quite to the contrary, the modern municipality is infused with many statist features and often functions as an agent of the bourgeois nation-state. Today, when the nation-state still seems supreme, the rights that modern municipalities possess cannot be dismissed as the epiphenomena of more basic economic relations. Indeed, to a great degree, they are the hard-won gains of

commoners, who long defended them against assaults by ruling classes over the course of history — even against the bourgeoisie itself.

The concrete political dimension of Communalism is known as libertarian municipalism, about which I have previously written extensively. In its libertarian municipalist program, Communalism resolutely seeks to eliminate statist municipal structures and replace them with the institutions of a libertarian polity. It seeks to radically restructure cities' governing institutions into popular democratic assemblies based on neighborhoods, towns, and villages. In these popular assemblies, citizens — including the middle classes as well as the working classes-deal with community affairs on a face- to-face basis, making policy decisions in a direct democracy, and giving reality to the ideal of a humanistic, rational society.

Minimally, if we are to have the kind of free social life to which we aspire, democracy should be our form of a shared political life. To address problems and issues that transcend the boundaries of a single municipality, in turn, the democratized municipalities should join together to form a broader confederation. These assemblies and confederations, by their very existence, could then challenge the legitimacy of the state and statist forms of power. They could expressly be aimed at replacing state power and statecraft with popular power and a socially rational transformative politics. And they would become arenas where class conflicts could be played out and where classes could be eliminated.

Libertarian municipalists do not delude themselves that the state will view with equanimity their attempts to replace professionalized power with popular power. They harbor no illusions that the ruling classes will indifferently allow a Communalist movement to demand rights that infringe on the state's sovereignty over towns and cities. Historically, regions, localities, and above all towns and cities have desperately struggled to reclaim their local sovereignty from the state (albeit not always for high-minded purposes). Communalists' attempt to restore the powers of towns and cities and to knit them together into confederations can be expected to evoke increasing resistance from national institutions. That the new popular-assemblyist municipal confederations will embody a dual power against the state that becomes a source of growing political tension is obvious. Either a Communalist movement will be radicalized by this tension and will resolutely face all its consequences, or it will surely sink into a morass of compromises that absorb it back into the social order that it once sought to change. How the movement meets this challenge is a clear measure of its seriousness in seeking to change the existing political system and the social consciousness it develops as a source of public education and leadership.

Communalism constitutes a critique of hierarchical and capitalist society as a whole. It seeks to alter not only the political life of society but also its economic life. On this score, its aim is not to nationalize the economy or retain private ownership of the means of production but to municipalize the economy. It seeks to integrate the means of production into the existential life of the municipality, such that every productive enterprise falls under the purview of the local assembly, which decides how it will function to meet the interests of the community as a whole. The separation between life and work, so prevalent in the modern capitalist economy, must be overcome so that citizens' desires and needs, the artful challenges of creation in the course of production, and role of production in fashioning thought and self-definition are not lost. "Humanity

makes itself," to cite the title of V. Gordon Childe's book on the urban revolution at the end of the Neolithic age and the rise of cities, and it does so not only intellectually and esthetically, but by expanding human needs as well as the productive methods for satisfying them. We discover ourselves — our potentialities and their actualization — through creative and useful work that not only transforms the natural world but leads to our self-formation and self-definition.

We must also avoid the parochialism and ultimately the desires for proprietorship that have afflicted so many self-managed enterprises, such as the "collectives" in the Russian and Spanish revolutions. Not enough has been written about the drift among many "socialistic" self-managed enterprises, even under the red and red-and-black flags, respectively, of revolutionary Russia and revolutionary Spain, toward forms of collective capitalism that ultimately led many of these concerns to compete with one another for raw materials and markets.

Most importantly, in Communalist political life, workers of different occupations would take their seats in popular assemblies not as workers — printers, plumbers, foundry workers and the like, with special occupational interests to advance — but as citizens, whose overriding concern should be the general interest of the society in which they live. Citizens should be freed of their particularistic identity as workers, specialists, and individuals concerned primarily with their own particularistic interests. Municipal life should become a school for the formation of citizens, both by absorbing new citizens and by educating the young, while the assemblies themselves should function not only as permanent decision-making institutions but as arenas for educating the people in handling complex civic and regional affairs.

In a Communalist way of life, conventional economics, with its focus on prices and scarce resources, would be replaced by ethics, with its concern for human needs and the good life. Human solidarity — or philia, as the Greeks called it — would replace material gain and egotism. Municipal assemblies would become not only vital arenas for civic life and decision-making but centers where the shadowy world of economic logistics, properly coordinated production, and civic operations would be demystified and opened to the scrutiny and participation of the citizenry as a whole. The emergence of the new citizen would mark a transcendence of the particularistic class being of traditional socialism and the formation of the "new man" which the Russian revolutionaries hoped they could eventually achieve. Humanity would now be able to rise to the universal state of consciousness and rationality that the great utopians of the nineteenth century and the Marxists hoped their efforts would create, opening the way to humanity's fulfillment as a species that embodies reason rather than material interest and that affords material post-scarcity rather than an austere harmony enforced by a morality of scarcity and material deprivation.

Classical Athenian democracy of the fifth century B.C.E., the source of the Western democratic tradition, was based on face-to-face decision-making in communal assemblies of the people and confederations of those municipal assemblies. For more than two millennia, the political writings of Aristotle recurrently served to heighten our awareness of the city as the arena for the fulfillment of human potentialities for reason, self-consciousness, and the good life. Appropriately, Aristotle traced the emergence of the polis from the family or oikos — i.e., the realm of necessity, where human beings satisfied their basically animalistic needs, and where authority rested with the eldest male. But the association of several families, he observed, "aim[ed] at something more than the

supply of daily needs"; this aim initiated the earliest political formation, the village. Aristotle famously described man (by which he meant the adult Greek male) as a "political animal" (politikon zoon) who presided over family members not only to meet their material needs but as the material precondition for his participation in political life, in which discourse and reason replaced mindless deeds, custom, and violence. Thus, "[w]hen several villages are united in a single complete community (koinonan), large enough to be nearly or quite self-sufficing," he continued, "the polis comes into existence, originating in the bare needs of life, and continuing in existence for the sake of a good life."

For Aristotle, and we may assume also for the ancient Athenians, the municipality's proper functions were thus not strictly instrumental or even economic. As the locale of human consociation, the municipality, and the social and political arrangements that people living there constructed, was humanity's telos, the arena par excellence where human beings, over the course of history, could actualize their potentiality for reason, self-consciousness, and creativity. Thus for the ancient Athenians, politics denoted not only the handling of the practical affairs of a polity but civic activities that were charged with moral obligation to one's community. All citizens of a city were expected to participate in civic activities as ethical beings.

Examples of municipal democracy were not limited to ancient Athens. Quite to the contrary, long before class differentiations gave rise to the state, many relatively secular towns produced the earliest institutional structures of local democracy. Assemblies of the people may have existed in ancient Sumer, at the very beginning of the so-called "urban revolution" some seven or eight thousand years ago. They clearly appeared among the Greeks, and until the defeat of the Gracchus brothers, they were popular centers of power in republican Rome. They were nearly ubiquitous in the medieval towns of Europe and even in Russia, notably in Novgorod and Pskov, which, for a time, were among the most democratic cities in the Slavic world. The assembly, it should be emphasized, began to approximate its truly modern form in the neighborhood Parisian sections of 1793, when they became the authentic motive forces of the Great Revolution and conscious agents for the making of a new body politic. That they were never given the consideration they deserve in the literature on democracy, particularly democratic Marxist tendencies and revolutionary syndicalists, is dramatic evidence of the flaws that existed in the revolutionary tradition.

These democratic municipal institutions normally existed in combative tension with grasping monarchs, feudal lords, wealthy families, and freebooting invaders until they were crushed, frequently in bloody struggles. It cannot be emphasized too strongly that every great revolution in modern history had a civic dimension that has been smothered in radical histories by an emphasis on class antagonisms, however important these antagonisms have been. Thus it is unthinkable that the English Revolution of the 1640s can be understood without singling out London as its terrain; or, by the same token, any discussions of the various French Revolutions without focusing on Paris, or the Russian Revolutions without dwelling on Petrograd, or the Spanish Revolution of 1936 without citing Barcelona as its most advanced social center. This centrality of the city is not a mere geographic fact; it is, above all, a profoundly political one, which involved the ways in which revolutionary masses aggregated and debated, the civic traditions that nourished them, and the environment that fostered their revolutionary views.

Libertarian municipalism is an integral part of the Communalist framework, indeed its praxis, just as Communalism as a systematic body of revolutionary thought is meaningless without libertarian municipalism. The differences between Communalism and authentic or "pure" anarchism, let alone Marxism, are much too great to be spanned by a prefix such as anarcho-, social-, neo-, or even libertarian. Any attempt to reduce Communalism to a mere variant of anarchism would be to deny the integrity of both ideas — indeed, to ignore their conflicting concepts of democracy, organization, elections, government, and the like. Gustave Lefrancais, the Paris Communard who may have coined this political term, adamantly declared that he was "a Communalist, not an anarchist."

Above all, Communalism is engaged with the problem of power. In marked contrast to the various kinds of communitarian enterprises favored by many self-designated anarchists, such as "people's" garages, print shops, food coops, and backyard gardens, adherents of Communalism mobilize themselves to electorally engage in a potentially important center of power — the municipal council — and try to compel it to create legislatively potent neighborhood assemblies. These assemblies, it should be emphasized, would make every effort to delegitimate and depose the statist organs that currently control their villages, towns, or cities and thereafter act as the real engines in the exercise of power. Once a number of municipalities are democratized along communalist lines, they would methodically confederate into municipal leagues and challenge the role of the nation-state and, through popular assemblies and confederal councils, try to acquire control over economic and political life.

Finally, Communalism, in contrast to anarchism, decidedly calls for decision-making by majority voting as the only equitable way for a large number of people to make decisions. Authentic anarchists claim that this principle — the "rule" of the minority by the majority — is authoritarian and propose instead to make decisions by consensus. Consensus, in which single individuals can veto majority decisions, threatens to abolish society as such. A free society is not one in which its members, like Homer's lotus-eaters, live in a state of bliss without memory, temptation, or knowledge. Like it or not, humanity has eaten of the fruit of knowledge, and its memories are laden with history and experience. In a lived mode of freedom — contrary to mere café chatter — the rights of minorities to express their dissenting views will always be protected as fully as the rights of majorities. Any abridgements of those rights would be instantly corrected by the community — hopefully gently, but if unavoidable, forcefully — lest social life collapse into sheer chaos. Indeed, the views of a minority would be treasured as potential source of new insights and nascent truths that, if abridged, would deny society the sources of creativity and developmental advances — for new ideas generally emerge from inspired minorities that gradually gain the centrality they deserve at a given time and place — until, again, they too are challenged as the conventional wisdom of a period that is beginning to pass away and requires new (minority) views to replace frozen orthodoxies.

The Need for Organization and Education

It remains to ask: how are we to achieve this rational society? One anarchist writer would have it that the good society (or a true "natural" disposition of affairs, including a "natural man") exists beneath the oppressive burdens of civilization like fertile soil beneath the snow. It follows from

this mentality that all we are obliged to do to achieve the good society is to somehow eliminate the snow, which is to say capitalism, nation-states, churches, conventional schools, and other almost endless types of institutions that perversely embody domination in one form or another. Presumably an anarchist society — once state, governmental, and cultural institutions are merely removed-would emerge intact, ready to function and thrive as a free society. Such a "society," if one can even call it such, would not require that we proactively create it: we would simply let the snow above it melt away. The process of rationally creating a free Communalist society, alas, will require substantially more thought and work than embracing a mystified concept of aboriginal innocence and bliss.

A Communalist society should rest, above all, on the efforts of a new radical organization to change the world, one that has a new political vocabulary to explain its goals, and a new program and theoretical framework to make those goals coherent. It would, above all, require dedicated individuals who are willing to take on the responsibilities of education and, yes, leadership. Unless words are not to become completely mystified and obscure a reality that exists before our very eyes, it should minimally be acknowledged that leadership always exists and does not disappear because it is clouded by euphemisms such as "militants" or, as in Spain, "influential militants." It must also be acknowledge that many individuals in earlier groups like the CNT were not just "influential militants" but outright leaders, whose views were given more consideration — and deservedly so! — than those of others because they were based on more experience, knowledge, and wisdom, as well as the psychological traits that were needed to provide effective guidance. A serious libertarian approach to leadership would indeed acknowledge the reality and crucial importance of leaders — all the more to establish the greatly needed formal structures and regulations that can effectively control and modify the activities of leaders and recall them when the membership decides their respect is being misused or when leadership becomes an exercise in the abusive exercise of power.

A libertarian municipalist movement should function, not with the adherence of flippant and tentative members, but with people who have been schooled in the movement's ideas, procedures and activities. They should, in effect, demonstrate a serious commitment to their organization — an organization whose structure is laid out explicitly in a formal constitution and appropriate bylaws. Without a democratically formulated and approved institutional framework whose members and leaders can be held accountable, clearly articulated standards of responsibility cease to exist. Indeed, it is precisely when a membership is no longer responsible to its constitutional and regulatory provisions that authoritarianism develops and eventually leads to the movement's immolation. Freedom from authoritarianism can best be assured only by the clear, concise, and detailed allocation of power, not by pretensions that power and leadership are forms of "rule" or by libertarian metaphors that conceal their reality. It has been precisely when an organization fails to articulate these regulatory details that the conditions emerge for its degeneration and decay.

Ironically, no stratum has been more insistent in demanding its freedom to exercise its will against regulation than chiefs, monarchs, nobles, and the bourgeoisie; similarly even well- meaning anarchists have seen individual autonomy as the true expression of freedom from the "artificialities" of civilization. In the realm of true freedom — that is, freedom that has been

actualized as the result of consciousness, knowledge, and necessity — to know what we can and cannot do is more cleanly honest and true to reality than to avert the responsibility of knowing the limits of the lived world. Said a very wise man more than a century and a half ago: “Men make their own history, but they do not make it just as they please.”

Creating a New Left

The need for the international Left to advance courageously beyond a Marxist, anarchist, syndicalist, or vague socialist framework toward a Communalist framework is particularly compelling today. Rarely in the history of leftist political ideas have ideologies been so wildly and irresponsibly muddled; rarely has ideology itself been so disparaged; rarely has the cry for “Unity!” on any terms been heard with such desperation. To be sure, the various tendencies that oppose capitalism should indeed unite around efforts to discredit and ultimately efface the market system. To such ends, unity is an invaluable desideratum: a united front of the entire Left is needed in order to counter the entrenched system-indeed, culture-of commodity production and exchange, and to defend the residual rights that the masses have won in earlier struggles against oppressive governments and social systems.

The urgency of this need, however, does not require movement participants to abandon mutual criticism, or to stifle their criticism of the authoritarian traits present in anticapitalist organizations. Least of all does it require them to compromise the integrity and identity of their various programs. Th vast majority of participants in today’s movement are inexperienced young radicals who have come of age in an era of postmodernist relativism. As a consequence, the movement is marked by a chilling eclecticism, in which tentative opinions are chaotically mismarried to ideals that should rest on soundly objective premises. In a milieu where the clear expression of ideas is not valued and terms are inappropriately used, and where argumentation is disparaged as “aggressive” and, worse, “divisive,” it becomes difficult to formulate ideas in the crucible of debate. Ideas grow and mature best, in fact, not in the silence and controlled humidity of an ideological nursery, but in the tumult of dispute and mutual criticism.

Following revolutionary socialist practices of the past, Communalists would try to formulate a minimum program that calls for satisfaction of the immediate concerns of the masses, such as improved wages and shelter or adequate park space and transportation. This minimum program would aim to satisfy the most elemental needs of the masses, to improve their access to the resources that make daily life tolerable. The maximum program, by contrast, would present an image of what human life could be like under libertarian socialism, at least as far as such a society is foreseeable in a world that is continually changing under the impact of seemingly unending industrial revolutions.

Even more, however, Communalists would see their program and practice as a process. Indeed, a transitional program in which each new demand provides the springboard for escalating demands that lead toward more radical and eventually revolutionary demands. One of the most striking examples of a transitional demand was the programmatic call in the late nineteenth century by the Second International for a popular militia to replace a professional army. In still other cases, revolutionary socialists demanded that railroads be publicly owned (or, as revolutionary

syndicalists might have demanded, be controlled by railroad workers) rather than privately owned and operated. None of these demands were in themselves revolutionary, but they opened pathways, politically, to revolutionary forms of ownership and operation — which, in turn, could be escalated to achieve the movement's maximum program. Others might criticize such step-by-step endeavors as "reformist," but Communalists do not contend that a Communalist society can be legislated into existence. What these demands try to achieve, in the short term, are new rules of engagement between the people and capital — rules that are all the more needed at a time when "direct action" is being confused with protests of mere events whose agenda is set entirely by the ruling classes.

On the whole, Communalism is trying to rescue a realm of public action and discourse that is either disappearing or that is being be reduced to often-meaningless engagements with the police, or to street theater that, however artfully, reduces serious issues to simplistic performances that have no instructive influence. By contrast, Communalists try to build lasting organizations and institutions that can play a socially transformative role in the real world. Significantly, Communalists do not hesitate to run candidates in municipal elections who, if elected, would use what real power their offices confer to legislate popular assemblies into existence. These assemblies, in turn, would have the power ultimately to create effective forms of town-meeting government. Inasmuch as the emergence of the city — and city councils — long preceded the emergence of class society, councils based on popular assemblies are not inherently statist organs, and to participate seriously in municipal elections countervails reformist socialist attempts to elect statist delegates by offering the historic libertarian vision of municipal confederations as a practical, combative, and politically credible popular alternative to state power. Indeed, Communalist candidacies, which explicitly denounce parliamentary candidacies as opportunist, keep alive the debate over how libertarian socialism can be achieved — a debate that has been languishing for years.

There should be no self-deception about the opportunities that exist as a means of transforming our existing irrational society into a rational one. Our choices on how to transform the existing society are still on the table of history and are faced with immense problems. But unless present and future generations are beaten into complete submission by a culture based on queasy calculation as well as by police with tear gas and water cannons, we cannot desist from fighting for what freedoms we have and try to expand them into a free society wherever the opportunity to do so emerges. At any rate we now know, in the light of all the weaponry and means of ecological destruction that are at hand, that the need for radical change cannot be indefinitely deferred. What is clear is that human beings are much too intelligent not to have a rational society; the most serious question we face is whether they are rational enough to achieve one.

A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century - Donna Haraway

An Ironic Dream of a Common Language for Women in the integrated Circuit

This essay is an effort to build an ironic political myth faithful to feminism, socialism, and materialism. Perhaps more faithful as blasphemy is faithful, than as reverent worship and identification. Blasphemy has always seemed to require taking things very seriously. I know no better stance to adopt from within the secular-religious, evangelical traditions of United States

politics, including the politics of socialist feminism. Blasphemy protects one from the moral majority within, while still insisting on the need for community. Blasphemy is not apostasy. Irony is about contradictions that do not resolve into larger wholes, even dialectically, about the tension of holding incompatible things together because both or all are necessary and true. Irony is about humour and serious play. It is also a rhetorical strategy and a political method, one I would like to see more honoured within socialist-feminism. At the centre of my ironic faith, my blasphemy, is the image of the cyborg.

A cyborg is a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction. Social reality is lived social relations, our most important political construction, a world-changing fiction. The international women's movements have constructed 'women's experience', as well as uncovered or discovered this crucial collective object. This experience is a fiction and fact of the most crucial, political kind. Liberation rests on the construction of the consciousness, the imaginative apprehension, of oppression, and so of possibility. The cyborg is a matter of fiction and lived experience that changes what counts as women's experience in the late twentieth century. This is a struggle over life and death, but the boundary between science fiction and social reality is an optical illusion.

Contemporary science fiction is full of cyborgs—creatures simultaneously animal and machine, who populate worlds ambiguously natural and crafted. Modern medicine is also full of cyborgs, of couplings between organism and machine, each conceived as coded devices, in an intimacy and with a power that was not generated in the history of sexuality. Cyborg 'sex' restores some of the lovely replicative baroque of ferns and invertebrates (such nice organic prophylactics against heterosexism). Cyborg replication is uncoupled from organic reproduction. Modern production seems like a dream of cyborg colonization work, a dream that makes the nightmare of Taylorism seem idyllic. And modern war is a cyborg orgy, coded by C3I, command-control-communication-intelligence, an $84 billion item in 1984's US defence budget. I am making an argument for the cyborg as a fiction mapping our social and bodily reality and as an imaginative resource suggesting some very fruitful couplings. Michael Foucault's biopolitics is a flaccid premonition of cyborg politics, a very open field.

By the late twentieth century, our time, a mythic time, we are all chimeras, theorized and fabricated hybrids of machine and organism; in short, we are cyborgs. This cyborg is our ontology; it gives us our politics. The cyborg is a condensed image of both imagination and material reality, the two joined centres structuring any possibility of historical transformation. In the traditions of 'Western' science and politics—the tradition of racist, male-dominant capitalism; the tradition of progress; the tradition of the appropriation of nature as resource for the productions of culture; the tradition of reproduction of the self from the reflections of the other—the relation between organism and machine has been a border war. The stakes in the border war have been the territories of production, reproduction, and imagination. This chapter is an argument for pleasure in the confusion of boundaries and for responsibility in their construction. It is also an effort to contribute to socialist-feminist culture and theory in a postmodernist, non-naturalist mode and in the utopian tradition of imagining a world without gender, which is perhaps a world without genesis, but maybe also a world without end. The cyborg incarnation is outside salvation history. Nor does it

mark time on an oedipal calendar, attempting to heal the terrible cleavages of gender in an oral symbiotic utopia or post-oedipal apocalypse. As Zoe Sofoulis argues in her unpublished manuscript on Jacques Lacan, Melanie Klein, and nuclear culture, Lacklein, the most terrible and perhaps the most promising monsters in cyborg worlds are embodied in non-oedipal narratives with a different logic of repression, which we need to understand for our survival.

The cyborg is a creature in a post-gender world; it has no truck with bisexuality, pre-oedipal symbiosis, unalienated labour, or other seductions to organic wholeness through a final appropriation of all the powers of the parts into a higher unity. In a sense, the cyborg has no origin story in the Western sense – a 'final' irony since the cyborg is also the awful apocalyptic telos of the 'West's' escalating dominations of abstract individuation, an ultimate self—untied at last from all dependency, a man in space. An origin story in the 'Western', humanist sense depends on the myth of original unity, fullness, bliss and terror, represented by the phallic mother from whom all humans must separate, the task of individual development and of history, the twin potent myths inscribed most powerfully for us in psychoanalysis and Marxism. Hilary Klein has argued that both Marxism and psychoanalysis, in their concepts of labour and of individuation and gender formation, depend on the plot of original unity out of which difference must be produced and enlisted in a drama of escalating domination of woman/nature. The cyborg skips the step of original unity, of identification with nature in the Western sense. This is its illegitimate promise that might lead to subversion of its teleology as Star Wars.

The cyborg is resolutely committed to partiality, irony, intimacy, and perversity. It is oppositional, utopian, and completely without innocence. No longer structured by the polarity of public and private, the cyborg defines a technological polls based partly on a revolution of social relations in the oikos, the household. Nature and culture are reworked; the one can no longer be the resource for appropriation or incorporation by the other. The relationships for forming wholes from parts, including those of polarity and hierarchical domination, are at issue in the cyborg world. Unlike the hopes of Frankenstein's monster, the cyborg does not expect its father to save it through a restoration of the garden; that is, through the fabrication of a heterosexual mate, through its completion in a finished whole, a city and cosmos. The cyborg does not dream of community on the model of the organic family, this time without the oedipal project. The cyborg would not recognize the Garden of Eden; it is not made of mud and cannot dream of returning to dust. Perhaps that is why I want to see if cyborgs can subvert the apocalypse of returning to nuclear dust in the manic compulsion to name the Enemy. Cyborgs are not reverent; they do not re-member the cosmos. They are wary of holism, but needy for connection—they seem to have a natural feel for united front politics, but without the vanguard party. The main trouble with cyborgs, of course, is that they are the illegitimate offspring of militarism and patriarchal capitalism, not to mention state socialism. But illegitimate offspring are often exceedingly unfaithful to their origins. Their fathers, after all, are inessential.

I will return to the science fiction of cyborgs at the end of this chapter, but now I want to signal three crucial boundary breakdowns that make the following political-fictional (political-scientific) analysis possible. By the late twentieth century in United States scientific culture, the boundary between human and animal is thoroughly breached. The last beachheads of uniqueness have been

polluted if not turned into amusement parks—language tool use, social behaviour, mental events, nothing really convincingly settles the separation of human and animal. And many people no longer feel the need for such a separation; indeed, many branches of feminist culture affirm the pleasure of connection of human and other living creatures. Movements for animal rights are not irrational denials of human uniqueness; they are a clear-sighted recognition of connection across the discredited breach of nature and culture. Biology and evolutionary theory over the last two centuries have simultaneously produced modern organisms as objects of knowledge and reduced the line between humans and animals to a faint trace re-etched in ideological struggle or professional disputes between life and social science. Within this framework, teaching modern Christian creationism should be fought as a form of child abuse.

Biological-determinist ideology is only one position opened up in scientific culture for arguing the meanings of human animality. There is much room for radical political people to contest the meanings of the breached boundary. The cyborg appears in myth precisely where the boundary between human and animal is transgressed. Far from signaling a walling off of people from other living beings, cyborgs signal disturbingly and pleasurably tight coupling. Bestiality has a new status in this cycle of marriage exchange.

The second leaky distinction is between animal-human (organism) and machine. Pre-cybernetic machines could be haunted; there was always the spectre of the ghost in the machine. This dualism structured the dialogue between materialism and idealism that was settled by a dialectical progeny, called spirit or history, according to taste. But basically machines were not self-moving, self-designing, autonomous. They could not achieve man's dream, only mock it. They were not man, an author to himself, but only a caricature of that masculinist reproductive dream. To think they were otherwise was paranoid. Now we are not so sure. Late twentieth-century machines have made thoroughly ambiguous the difference between natural and artificial, mind and body, self-developing and externally designed, and many other distinctions that used to apply to organisms and machines. Our machines are disturbingly lively, and we ourselves frighteningly inert.

Technological determination is only one ideological space opened up by the reconceptions of machine and organism as coded texts through which we engage in the play of writing and reading the world. 'Textualization' of everything in poststructuralist, postmodernist theory has been damned by Marxists and socialist feminists for its utopian disregard for the lived relations of domination that ground the 'play' of arbitrary reading. It is certainly true that postmodernist strategies, like my cyborg myth, subvert myriad organic wholes (for example, the poem, the primitive culture, the biological organism). In short, the certainty of what counts as nature—a source of insight and promise of innocence—is undermined, probably fatally. The transcendent authorization of interpretation is lost, and with it the ontology grounding 'Western' epistemology. But the alternative is not cynicism or faithlessness, that is, some version of abstract existence, like the accounts of technological determinism destroying 'man' by the 'machine' or 'meaningful political action' by the 'text'. Who cyborgs will be is a radical question; the answers are a matter of survival. Both chimpanzees and artefacts have politics, so why shouldn't we (de Waal, 1982; Winner, 1980)?

The third distinction is a subset of the second: the boundary between physical and non-physical is very imprecise for us. Pop physics books on the consequences of quantum theory and the indeterminacy principle are a kind of popular scientific equivalent to Harlequin romances as a marker of radical change in American white heterosexuality: they get it wrong, but they are on the right subject. Modern machines are quintessentially microelectronic devices: they are everywhere and they are invisible. Modern machinery is an irreverent upstart god, mocking the Father's ubiquity and spirituality. The silicon chip is a surface for writing; it is etched in molecular scales disturbed only by atomic noise, the ultimate interference for nuclear scores. Writing, power, and technology are old partners in Western stories of the origin of civilization, but miniaturization has changed our experience of mechanism. Miniaturization has turned out to be about power; small is not so much beautiful as pre-eminently dangerous, as in cruise missiles. Contrast the TV sets of the 1950s or the news cameras of the 1970s with the TV wrist bands or hand-sized video cameras now advertised. Our best machines are made of sunshine; they are all light and clean because they are nothing but signals, electromagnetic waves, a section of a spectrum, and these machines are eminently portable, mobile—a matter of immense human pain in Detroit and Singapore. People are nowhere near so fluid, being both material and opaque. Cyborgs are ether, quintessence.

The ubiquity and invisibility of cyborgs is precisely why these sunshine-belt machines are so deadly. They are as hard to see politically as materially. They are about consciousness—or its simulation. They are floating signifiers moving in pickup trucks across Europe, blocked more effectively by the witch-weavings of the displaced and so unnatural Greenham women, who read the cyborg webs of power so very well, than by the militant labour of older masculinist politics, whose natural constituency needs defence jobs. Ultimately the 'hardest' science is about the realm of greatest boundary confusion, the realm of pure number, pure spirit, C3I, cryptography, and the preservation of potent secrets. The new machines are so clean and light. Their engineers are sun-worshippers mediating a new scientific revolution associated with the night dream of post-industrial society. The diseases evoked by these clean machines are 'no more' than the minuscule coding changes of an antigen in the immune system, 'no more' than the experience of stress. The nimble fingers of 'Oriental' women, the old fascination of little Anglo-Saxon Victorian girls with doll's houses, women's enforced attention to the small take on quite new dimensions in this world. There might be a cyborg Alice taking account of these new dimensions. Ironically, it might be the unnatural cyborg women making chips in Asia and spiral dancing in Santa Rita jail whose constructed unities will guide effective oppositional strategies.

So my cyborg myth is about transgressed boundaries, potent fusions, and dangerous possibilities which progressive people might explore as one part of needed political work. One of my premises is that most American socialists and feminists see deepened dualisms of mind and body, animal and machine, idealism and materialism in the social practices, symbolic formulations, and physical artefacts associated with 'high technology' and scientific culture. From One-Dimensional-Man (Marcuse, 1964) to The Death of Nature (Merchant, 1980), the analytic resources developed by progressives have insisted on the necessary domination of technics and recalled us to an imagined organic body to integrate our resistance. Another of my premises is that the need for unity of people trying to resist world-wide intensification of domination has never been more acute. But a slightly

perverse shift of perspective might better enable us to contest for meanings, as well as for other forms of power and pleasure in technologically mediated societies.

From one perspective, a cyborg world is about the final imposition of a grid of control on the planet, about the final abstraction embodied in a Star Wars apocalypse waged in the name of defence, about the final appropriation of women's bodies in a masculinist orgy of war (Sofia, 1984). From another perspective, a cyborg world might be about lived social and bodily realities in which people are not afraid of their joint kinship with animals and machines, not afraid of permanently partial identities and contradictory standpoints. The political struggle is to see from both perspectives at once because each reveals both dominations and possibilities unimaginable from the other vantage point. Single vision produces worse illusions than double vision or many-headed monsters. Cyborg unities are monstrous and illegitimate; in our present political circumstances, we could hardly hope for more potent myths for resistance and recoupling. I like to imagine LAG, the Livermore Action Group, as a kind of cyborg society, dedicated to realistically converting the laboratories that most fiercely embody and spew out the tools of technological apocalypse, and committed to building a political form that actually manages to hold together witches, engineers, elders, perverts, Christians, mothers, and Leninists long enough to disarm the state. Fission Impossible is the name of the affinity group in my town. (Affinity: related not by blood but by choice, the appeal of one chemical nuclear group for another, avidly.)

Fractured Identities

It has become difficult to name one's feminism by a single adjective—or even to insist in every circumstance upon the noun. Consciousness of exclusion through naming is acute. Identities seem contradictory, partial, and strategic. With the hard-won recognition of their social and historical constitution, gender, race, and class cannot provide the basis for belief in 'essential' unity. There is nothing about teeing 'female' that naturally binds women. There is not even such a state as 'being' female, itself a highly complex category constructed in contested sexual scientific discourses and other social practices. Gender, race, or class consciousness is an achievement forced on us by the terrible historical experience of the contradictory social realities of patriarchy, colonialism, and capitalism. And who counts as 'us' in my own rhetoric? Which identities are available to ground such a potent political myth called 'us', and what could motivate enlistment in this collectivity? Painful fragmentation among feminists (not to mention among women) along every possible fault line has made the concept of woman elusive, an excuse for the matrix of women's dominations of each other. For me—and for many who share a similar historical location in white, professional middle-class, female, radical, North American, mid-adult bodies—the sources of a crisis in political identity are legion. The recent history for much of the US left and US feminism has been a response to this kind of crisis by endless splitting and searches for a new essential unity. But there has also been a growing recognition of another response through coalition—affinity, not identity.

Chela Sandoval (n.d., 1984), from a consideration of specific historical moments in the formation of the new political voice called women of colour, has theorized a hopeful model of political identity called 'oppositional consciousness', born of the skills for reading webs of power by those refused stable membership in the social categories of race, sex, or class. 'Women of color', a name

contested at its origins by those whom it would incorporate, as well as a historical consciousness marking systematic breakdown of all the signs of Man in 'Western' traditions, constructs a kind of postmodernist identity out of otherness, difference, and specificity. This postmodernist identity is fully political, whatever might be said about other possible postmodernisms. Sandoval's oppositional consciousness is about contradictory locations and heterochronic calendars, not about relativisms and pluralisms.

Sandoval emphasizes the lack of any essential criterion for identifying who is a woman of colour. She notes that the definition of the group has been by conscious appropriation of negation. For example, a Chicana or US black woman has not been able to speak as a woman or as a black person or as a Chicano. Thus, she was at the bottom of a cascade of negative identities, left out of even the privileged oppressed authorial categories called 'women and blacks', who claimed to make the important revolutions. The category 'woman' negated all non-white women; 'black' negated all non-black people, as well as all black women. But there was also no 'she', no singularity, but a sea of differences among US women who have affirmed their historical identity as US women of colour. This identity marks out a self-consciously constructed space that cannot affirm the capacity to act on the basis of natural identification, but only on the basis of conscious coalition, of affinity, of political kinship. Unlike the 'woman' of some streams of the white women's movement in the United States, there is no naturalization of the matrix, or at least this is what Sandoval argues is uniquely available through the power of oppositional consciousness.

Sandoval's argument has to be seen as one potent formulation for feminists out of the world-wide development of anti-colonialist discourse; that is to say, discourse dissolving the 'West' and its highest product—the one who is not animal, barbarian, or woman; man, that is, the author of a cosmos called history. As orientalism is deconstructed politically and semiotically, the identities of the occident destabilize, including those of feminists. Sandoval argues that 'women of colour' have a chance to build an effective unity that does not replicate the imperializing, totalizing revolutionary subjects of previous Marxisms and feminisms which had not faced the consequences of the disorderly polyphony emerging from decolonization.

Katie King has emphasized the limits of identification and the political/ poetic mechanics of identification built into reading 'the poem', that generative core of cultural feminism. King criticizes the persistent tendency among contemporary feminists from different 'moments' or 'conversations' in feminist practice to taxonomize the women's movement to make one's own political tendencies appear to be the telos of the whole. These taxonomies tend to remake feminist history so that it appears to be an ideological struggle among coherent types persisting over time, especially those typical units called radical, liberal, and socialist-feminism. Literally, all other feminisms are either incorporated or marginalized, usually by building an explicit ontology and epistemology. Taxonomies of feminism produce epistemologies to police deviation from official women's experience. And of course, 'women's culture', like women of colour, is consciously created by mechanisms inducing affinity. The rituals of poetry, music, and certain forms of academic practice have been pre-eminent. The politics of race and culture in the US women's movements are intimately interwoven. The common achievement of King and Sandoval is learning

how to craft a poetic/political unity without relying on a logic of appropriation, incorporation, and taxonomic identification.

The theoretical and practical struggle against unity-through-domination or unity-through-incorporation ironically not only undermines the justifications for patriarchy, colonialism, humanism, positivism, essentialism, scientism, and other unlamented -isms, but all claims for an organic or natural standpoint. I think that radical and socialist/Marxist-feminisms have also undermined their/our own epistemological strategies and that this is a crucially valuable step in imagining possible unities. It remains to be seen whether all 'epistemologies' as Western political people have known them fail us in the task to build effective affinities.

It is important to note that the effort to construct revolutionary stand-points, epistemologies as achievements of people committed to changing the world, has been part of the process showing the limits of identification. The acid tools of postmodernist theory and the constructive tools of ontological discourse about revolutionary subjects might be seen as ironic allies in dissolving Western selves in the interests of survival. We are excruciatingly conscious of what it means to have a historically constituted body. But with the loss of innocence in our origin, there is no expulsion from the Garden either. Our politics lose the indulgence of guilt with the naiveté of innocence. But what would another political myth for socialist-feminism look like? What kind of politics could embrace partial, contradictory, permanently unclosed constructions of personal and collective selves and still be faithful, effective—and, ironically, socialist-feminist?

I do not know of any other time in history when there was greater need for political unity to confront effectively the dominations of 'race', 'gender', 'sexuality', and 'class'. I also do not know of any other time when the kind of unity we might help build could have been possible. None of 'us' have any longer the symbolic or material capability of dictating the shape of reality to any of 'them'. Or at least 'we' cannot claim innocence from practicing such dominations. White women, including socialist feminists, discovered (that is, were forced kicking and screaming to notice) the non-innocence of the category 'woman'. That consciousness changes the geography of all previous categories; it denatures them as heat denatures a fragile protein. Cyborg feminists have to argue that 'we' do not want any more natural matrix of unity and that no construction is whole. Innocence, and the corollary insistence on victimhood as the only ground for insight, has done enough damage. But the constructed revolutionary subject must give late-twentieth-century people pause as well. In the fraying of identities and in the reflexive strategies for constructing them, the possibility opens up for weaving something other than a shroud for the day after the apocalypse that so prophetically ends salvation history.

Both Marxist/socialist-feminisms and radical feminisms have simultaneously naturalized and denatured the category 'woman' and conscious-ness of the social lives of 'women'. Perhaps a schematic caricature can highlight both kinds of moves. Marxian socialism is rooted in an analysis of wage labour which reveals class structure. The consequence of the wage relationship is systematic alienation, as the worker is dissociated from his (sic) product. Abstraction and illusion rule in knowledge, domination rules in practice. Labour is the pre-eminently privileged category enabling the Marxist to overcome illusion and find that point of view which is necessary for changing the world. Labour is the humanizing activity that makes man; labour is an ontological

category permitting the knowledge of a subject, and so the knowledge of subjugation and alienation.

In faithful filiation, socialist-feminism advanced by allying itself with the basic analytic strategies of Marxism. The main achievement of both Marxist feminists and socialist feminists was to expand the category of labour to accommodate what (some) women did, even when the wage relation was subordinated to a more comprehensive view of labour under capitalist patriarchy. In particular, women's labour in the household and women's activity as mothers generally (that is, reproduction in the socialist-feminist sense), entered theory on the authority of analogy to the Marxian concept of labour. The unity of women here rests on an epistemology based on the ontological structure of 'labour'. Marxist/socialist-feminism does not 'naturalize' unity; it is a possible achievement based on a possible standpoint rooted in social relations. The essentializing move is in the ontological structure of labour or of its analogue, women's activity. The inheritance of Marxian humanism, with its pre-eminently Western self, is the difficulty for me. The contribution from these formulations has been the emphasis on the daily responsibility of real women to build unities, rather than to naturalize them.

Catherine MacKinnon's (1982, 1987) version of radical feminism is itself a caricature of the appropriating, incorporating, totalizing tendencies of Western theories of identity grounding action. It is factually and politically wrong to assimilate all of the diverse 'moments' or 'conversations' in recent women's politics named radical feminism to MacKinnon's version. But the teleological logic of her theory shows how an epistemology and ontology—including their negations—erase or police difference. Only one of the effects of MacKinnon's theory is the rewriting of the history of the polymorphous field called radical feminism. The major effect is the production of a theory of experience, of women's identity, that is a kind of apocalypse for all revolutionary standpoints. That is, the totalization built into this tale of radical feminism achieves its end—the unity of women—by enforcing the experience of and testimony to radical non-being. As for the Marxist/ socialist feminist, consciousness is an achievement, not a natural fact. And MacKinnon's theory eliminates some of the difficulties built into humanist revolutionary subjects, but at the cost of radical reductionism.

MacKinnon argues that feminism necessarily adopted a different analytical strategy from Marxism, looking first not at the structure of class, but at the structure of sex/gender and its generative relationship, men's constitution and appropriation of women sexually. Ironically, MacKinnon's 'ontology' constructs a non-subject, a non-being. Another's desire, not the self's labour, is the origin of 'woman'. She therefore develops a theory of consciousness that enforces what can count as 'women's' experience—anything that names sexual violation, indeed, sex itself as far as 'women' can be concerned. Feminist practice is the construction of this form of consciousness; that is, the self-knowledge of a self-who-is-not.

Perversely, sexual appropriation in this feminism still has the epistemological status of labour; that is to say, the point from which an analysis able to contribute to changing the world must flow. But sexual objectification, not alienation, is the consequence of the structure of sex/gender. In the realm of knowledge, the result of sexual objectification is illusion and abstraction. However, a woman is not simply alienated from her product, but in a deep sense does not exist as a subject, or even

potential subject, since she owes her existence as a woman to sexual appropriation. To be constituted by another's desire is not the same thing as to be alienated in the violent separation of the labourer from his product.

MacKinnon's radical theory of experience is totalizing in the extreme; it does not so much marginalize as obliterate the authority of any other women's political speech and action. It is a totalization producing what Western patriarchy itself never succeeded in doing—feminists' consciousness of the non-existence of women, except as products of men's desire. I think MacKinnon correctly argues that no Marxian version of identity can firmly ground women's unity. But in solving the problem of the contradictions of any Western revolutionary subject for feminist purposes, she develops an even more authoritarian doctrine of experience. If my complaint about socialist/Marxian standpoints is their unintended erasure of polyvocal, unassimilable, radical difference made visible in anti-colonial discourse and practice, MacKinnon's intentional erasure of all difference through the device of the 'essential' non-existence of women is not reassuring.

In my taxonomy, which like any other taxonomy is a re-inscription of history, radical feminism can accommodate all the activities of women named by socialist feminists as forms of labour only if the activity can somehow be sexualized. Reproduction had different tones of meanings for the two tendencies, one rooted in labour, one in sex, both calling the consequences of domination and ignorance of social and personal reality 'false consciousness'.

Beyond either the difficulties or the contributions in the argument of any one author, neither Marxist nor radical feminist points of view have tended to embrace the status of a partial explanation; both were regularly constituted as totalities. Western explanation has demanded as much; how else could the 'Western' author incorporate its others? Each tried to annex other forms of domination by expanding its basic categories through analogy, simple listing, or addition. Embarrassed silence about race among white radical and socialist feminists was one major, devastating political consequence. History and polyvocality disappear into political taxonomies that try to establish genealogies. There was no structural room for race (or for much else) in theory claiming to reveal the construction of the category woman and social group women as a unified or totalizable whole. The structure of my caricature looks like this:

socialist feminism – structure of class // wage labour // alienation labour, by analogy reproduction, by extension sex, by addition race

radical feminism – structure of gender // sexual appropriation // objectification

sex, by analogy labour, by extension reproduction, by addition race

In another context, the French theorist, Julia Kristeva, claimed women appeared as a historical group after the Second World War, along with groups like youth. Her dates are doubtful; but we are now accustomed to remembering that as objects of knowledge and as historical actors, 'race' did not always exist, 'class' has a historical genesis, and 'homosexuals' are quite junior. It is no accident that the symbolic system of the family of man—and so the essence of woman—breaks up at the same moment that networks of connection among people on the planet are unprecedentedly multiple, pregnant, and complex. 'Advanced capitalism' is inadequate to convey

the structure of this historical moment. In the ‘Western’ sense, the end of man is at stake. It is no accident that woman disintegrates into women in our time. Perhaps socialist feminists were not substantially guilty of producing essentialist theory that suppressed women’s particularity and contradictory interests. I think we have been, at least through unreflective participation in the logics, languages, and practices of white humanism and through searching for a single ground of domination to secure our revolutionary voice. Now we have less excuse. But in the consciousness of our failures, we risk lapsing into boundless difference and giving up on the confusing task of making partial, real connection. Some differences are playful; some are poles of world historical systems of domination. ‘Epistemology’ is about knowing the difference.

The Informatics of Domination

In this attempt at an epistemological and political position, I would like to sketch a picture of possible unity, a picture indebted to socialist and feminist principles of design. The frame for my sketch is set by the extent and importance of rearrangements in world-wide social relations tied to science and technology. I argue for a politics rooted in claims about fundamental changes in the nature of class, race, and gender in an emerging system of world order analogous in its novelty and scope to that created by industrial capitalism; we are living through a movement from an organic, industrial society to a polymorphous, information system—from all work to all play, a deadly game. Simultaneously material and ideological, the dichotomies may be expressed in the following chart of transitions from the comfortable old hierarchical dominations to the scary new networks I have called the informatics of domination:

Transitions from the comfortable old hierarchical dominations to the scary new networks of informatics of domination.

Organics of Domination	Informatics of Domination
Representation	Simulation
Bourgeois novel, realism	Science fiction, postmodernism
Organism	Biotic Component
Depth, integrity	Surface, boundary
Heat	Noise
Biology as clinical practice	Biology as inscription
Physiology	Communications engineering
Small group	Subsystem
Perfection	Optimization
Eugenics	Population Control
Decadence, Magic Mountain	Obsolescence, Future Shock

Hygiene Stress Management

Microbiology, tuberculosis Immunology, AIDS

Organic division of labour Ergonomics/cybernetics of labour

Functional specialization Modular construction

Reproduction Replication

Organic sex role specialization Optimal genetic strategies

Biological determinism Evolutionary inertia, constraints

Community ecology Ecosystem

Racial chain of being Neo-imperialism, United Nations humanism

Scientific management in home/factory Global factory/Electronic cottage

Family/Market/Factory Women in the Integrated Circuit

Family wage Comparable worth

Public/Private Cyborg citizenship

Nature/Culturefields of difference

Co-operation Communications enhancement

Freud Lacan

Sex Genetic engineering

labour Robotics

Mind Artificial Intelligence

Second World War Star Wars

White Capitalist Patriarchy Informatics of Domination

This list suggests several interesting things. First, the objects on the right-hand side cannot be coded as ‘natural’, a realization that subverts naturalistic coding for the left-hand side as well. We cannot go back ideologically or materially. It’s not just that ‘god’ is dead; so is the ‘goddess’. Or both are revivified in the worlds charged with microelectronic and biotechnological politics. In relation to objects like biotic components, one must not think in terms of essential properties, but in terms of design, boundary constraints, rates of flows, systems logics, costs of lowering constraints. Sexual reproduction is one kind of reproductive strategy among many, with costs and benefits as a function of the system environment. Ideologies of sexual reproduction can no longer reasonably call on notions of sex and sex role as organic aspects in natural objects like organisms and families. Such reasoning will be unmasked as irrational, and ironically corporate executives

reading Playboy and anti-porn radical feminists will make strange bedfellows in jointly unmasking the irrationalism.

Likewise for race, ideologies about human diversity have to be formulated in terms of frequencies of parameters, like blood groups or intelligence scores. It is 'irrational' to invoke concepts like primitive and civilized. For liberals and radicals, the search for integrated social systems gives way to a new practice called 'experimental ethnography' in which an organic object dissipates in attention to the play of writing. At the level of ideology, we see translations of racism and colonialism into languages of development and under-development, rates and constraints of modernization. Any objects or persons can be reasonably thought of in terms of disassembly and reassembly; no 'natural' architectures constrain system design. The financial districts in all the world's cities, as well as the export-processing and free-trade zones, proclaim this elementary fact of 'late capitalism'. The entire universe of objects that can be known scientifically must be formulated as problems in communications engineering (for the managers) or theories of the text (for those who would resist). Both are cyborg semiologies.

One should expect control strategies to concentrate on boundary conditions and interfaces, on rates of flow across boundaries—and not on the integrity of natural objects. 'Integrity' or 'sincerity' of the Western self gives way to decision procedures and expert systems. For example, control strategies applied to women's capacities to give birth to new human beings will be developed in the languages of population control and maximization of goal achievement for individual decision-makers. Control strategies will be formulated in terms of rates, costs of constraints, degrees of freedom. Human beings, like any other component or subsystem, must be localized in a system architecture whose basic modes of operation are probabilistic, statistical. No objects, spaces, or bodies are sacred in themselves; any component can be interfaced with any other if the proper standard, the proper code, can be constructed for processing signals in a common language. Exchange in this world transcends the universal translation effected by capitalist markets that Marx analysed so well. The privileged pathology affecting all kinds of components in this universe is stress—communications breakdown (Hogness, 1983). The cyborg is not subject to Foucault's biopolitics; the cyborg simulates politics, a much more potent field of operations.

This kind of analysis of scientific and cultural objects of knowledge which have appeared historically since the Second World War prepares us to notice some important inadequacies in feminist analysis which has proceeded as if the organic, hierarchical dualisms ordering discourse in 'the West' since Aristotle still ruled. They have been cannibalized, or as Zoe Sofia (Sofoulis) might put it, they have been 'techno-digested'. The dichotomies between mind and body, animal and human, organism and machine, public and private, nature and culture, men and women, primitive and civilized are all in question ideologically. The actual situation of women is their integration/ exploitation into a world system of production/reproduction and communication called the informatics of domination. The home, workplace, market, public arena, the body itself—all can be dispersed and interfaced in nearly infinite, polymorphous ways, with large consequences for women and others—consequences that themselves are very different for different people and which make potent oppositional international movements difficult to imagine and essential for survival. One important route for reconstructing socialist-feminist politics is through theory and

practice addressed to the social relations of science and technology, including crucially the systems of myth and meanings structuring our imaginations. The cyborg is a kind of disassembled and reassembled, postmodern collective and personal self. This is the self feminists must code.

Communications technologies and biotechnologies are the crucial tools recrafting our bodies. These tools embody and enforce new social relations for women world-wide. Technologies and scientific discourses can be partially understood as formalizations, i.e., as frozen moments, of the fluid social interactions constituting them, but they should also be viewed as instruments for enforcing meanings. The boundary is permeable between tool and myth, instrument and concept, historical systems of social relations and historical anatomies of possible bodies, including objects of knowledge. Indeed, myth and tool mutually constitute each other.

Furthermore, communications sciences and modern biologies are constructed by a common move—the translation of the world into a problem of coding, a search for a common language in which all resistance to instrumental control disappears and all heterogeneity can be submitted to disassembly, reassembly, investment, and exchange.

In communications sciences, the translation of the world into a problem in coding can be illustrated by looking at cybernetic (feedback-controlled) systems theories applied to telephone technology, computer design, weapons deployment, or data base construction and maintenance. In each case, solution to the key questions rests on a theory of language and control; the key operation is determining the rates, directions, and probabilities of flow of a quantity called information. The world is subdivided by boundaries differentially permeable to information. Information is just that kind of quantifiable element (unit, basis of unity) which allows universal translation, and so unhindered instrumental power (called effective communication). The biggest threat to such power is interruption of communication. Any system breakdown is a function of stress. The fundamentals of this technology can be condensed into the metaphor C31, command-control communication-intelligence, the military's symbol for its operations theory.

In modern biologies, the translation of the world into a problem in coding can be illustrated by molecular genetics, ecology, sociobiological evolutionary theory, and immunobiology. The organism has been translated into problems of genetic coding and read-out. Biotechnology, a writing technology, informs research broadly. In a sense, organisms have ceased to exist as objects of knowledge, giving way to biotic components, i.e., special kinds of information-processing devices. The analogous moves in ecology could be examined by probing the history and utility of the concept of the ecosystem. Immunobiology and associated medical practices are rich exemplars of the privilege of coding and recognition systems as objects of knowledge, as constructions of bodily reality for us. Biology here is a kind of cryptography. Research is necessarily a kind of intelligence activity. Ironies abound. A stressed system goes awry; its communication processes break down; it fails to recognize the difference between self and other. Human babies with baboon hearts evoke national ethical perplexity—for animal rights activists at least as much as for the guardians of human purity. In the US gay men and intravenous drug users are the 'privileged' victims of an awful immune system disease that marks (inscribes on the body) confusion of boundaries and moral pollution (Treichler, 1987).

But these excursions into communications sciences and biology have been at a rarefied level; there is a mundane, largely economic reality to support my claim that these sciences and technologies indicate fundamental transformations in the structure of the world for us. Communications technologies depend on electronics. Modern states, multinational corporations, military power, welfare state apparatuses, satellite systems, political processes, fabrication of our imaginations, labour-control systems, medical constructions of our bodies, commercial pornography, the international division of labour, and religious evangelism depend intimately upon electronics. Micro-electronics is the technical basis of simulacra; that is, of copies without originals.

Microelectronics mediates the translations of labour into robotics and word processing, sex into genetic engineering and reproductive technologies, and mind into artificial intelligence and decision procedures. The new biotechnologies concern more than human reproduction. Biology as a powerful engineering science for redesigning materials and processes has revolutionary implications for industry, perhaps most obvious today in areas of fermentation, agriculture, and energy. Communications sciences and biology are constructions of natural-technical objects of knowledge in which the difference between machine and organism is thoroughly blurred; mind, body, and tool are on very intimate terms. The 'multinational' material organization of the production and reproduction of daily life and the symbolic organization of the production and reproduction of culture and imagination seem equally implicated. The boundary-maintaining images of base and superstructure, public and private, or material and ideal never seemed more feasible.

I have used Rachel Grossman's (1980) image of women in the integrated circuit to name the situation of women in a world so intimately restructured through the social relations of science and technology. I used the odd circumlocution, the social relations of science and technology, to indicate that we are not dealing with a technological determinism, but with a historical system depending upon structured relations among people. But the phrase should also indicate that science and technology provide fresh sources of power, that we need fresh sources of analysis and political action (Latour, 1984). Some of the rearrangements of race, sex, and class rooted in high-tech-facilitated social relations can make socialist-feminism more relevant to effective progressive politics.

The 'Homework Economy' Outside 'The Home'

The 'New Industrial Revolution' is producing a new world-wide working class, as well as new sexualities and ethnicities. The extreme mobility of capital and the emerging international division of labour are intertwined with the emergence of new collectivities, and the weakening of familiar groupings. These developments are neither gender- nor race-neutral. White men in advanced industrial societies have become newly vulnerable to permanent job loss, and women are not disappearing from the job rolls at the same rates as men. It is not simply that women in Third World countries are the preferred labour force for the science-based multinationals in the export-processing sectors, particularly in electronics. The picture is more systematic and involves reproduction, sexuality, culture, consumption, and production. In the prototypical Silicon Valley, many women's lives have been structured around employment in electronics-dependent jobs, and their intimate realities include serial heterosexual monogamy, negotiating childcare, distance from

extended kin or most other forms of traditional community, a high likelihood of loneliness and extreme economic vulnerability as they age. The ethnic and racial diversity of women in Silicon Valley structures a microcosm of conflicting differences in culture, family, religion, education, and language.

Richard Gordon has called this new situation the 'homework economy'. Although he includes the phenomenon of literal homework emerging in connection with electronics assembly, Gordon intends 'homework economy' to name a restructuring of work that broadly has the characteristics formerly ascribed to female jobs, jobs literally done only by women. Work is being redefined as both literally female and feminized, whether performed by men or women. To be feminized means to be made extremely vulnerable; able to be disassembled, reassembled, exploited as a reserve labour force; seen less as workers than as servers; subjected to some arrangements on and off the paid job that make a mockery of a limited work day; leading an existence that always borders on being obscene, out of place, and reducible to sex. Deskilling is an old strategy newly applicable to formerly privileged workers. However, the homework economy does not refer only to large-scale deskilling, nor does it deny that new areas of high skill are emerging, even for women and men previously excluded from skilled employment. Rather, the concept indicates that factory, home, and market are integrated on a new scale and that the places of women are crucial—and need to be analysed for differences among women and for meanings for relations between men and women in various situations.

The homework economy as a world capitalist organizational structure is made possible by (not caused by) the new technologies. The success of the attack on relatively privileged, mostly white, men's unionized jobs is deaf to the power of the new communications technologies to integrate and control labour despite extensive dispersion and decentralization. The consequences of the new technologies are felt by women both in the loss of the family (male) wage (if they ever had access to this white privilege) and in the character of their own jobs, which are becoming capital-intensive; for example, office work and nursing.

The new economic and technological arrangements are also related to the collapsing welfare state and the ensuing intensification of demands on women to sustain daily life for themselves as well as for men, children, and old people. The feminization of poverty—generated by dismantling the welfare state, by the homework economy where stable jobs become the exception, and sustained by the expectation that women's wages will not be matched by a male income for the support of children—has become an urgent focus. The causes of various women-headed households are a function of race, class, or sexuality; but their increasing generality is a ground for coalitions of women on many issues. That women regularly sustain daily life partly as a function of their enforced status as mothers is hardly new; the kind of integration with the overall capitalist and progressively war-based economy is new. The particular pressure, for example, on US black women, who have achieved an escape from (barely) paid domestic service and who now hold clerical and similar jobs in large numbers, has large implications for continued enforced black poverty with employment. Teenage women in industrializing areas of the Third World increasingly find themselves the sole or major source of a cash wage for their families, while access to land is

ever more problematic. These developments must have major consequences in the psychodynamics and politics of gender and race.

Within the framework of three major stages of capitalism (commercial/ early industrial, monopoly, multinational)—tied to nationalism, imperialism, and multinationalism, and related to Jameson's three dominant aesthetic periods of realism, modernism, and postmodernism—I would argue that specific forms of families dialectically relate to forms of capital and to its political and cultural concomitants. Although lived problematically and unequally, ideal forms of these families might be schematized as (1) the patriarchal nuclear family, structured by the dichotomy between public and private and accompanied by the white bourgeois ideology of separate spheres and nineteenth-century Anglo-American bourgeois feminism; (2) the modern family mediated (or enforced) by the welfare state and institutions like the family wage, with a flowering of a-feminist heterosexual ideologies, including their radical versions represented in Greenwich Village around the First World War; and (3) the 'family' of the homework economy with its oxymoronic structure of women-headed households and its explosion of feminisms and the paradoxical intensification and erosion of gender itself.

This is the context in which the projections for world-wide structural unemployment stemming from the new technologies are part of the picture of the homework economy. As robotics and related technologies put men out of work in 'developed' countries and exacerbate failure to generate male jobs in Third World 'development', and as the automated office becomes the rule even in labour-surplus countries, the feminization of work intensifies. Black women in the United States have long known what it looks like to face the structural underemployment ('feminization') of black men, as well as their own highly vulnerable position in the wage economy. It is no longer a secret that sexuality, reproduction, family, and community life are interwoven with this economic structure in myriad ways which have also differentiated the situations of white and black women. Many more women and men will contend with similar situations, which will make cross-gender and race alliances on issues of basic life support (with or without jobs) necessary, not just mice.

The new technologies also have a profound effect on hunger and on food production for subsistence world-wide. Rae Lessor Blumberg (1983) estimates that women produce about 50 per cent of the world's subsistence food. Women are excluded generally from benefiting from the increased high-tech commodification of food and energy crops, their days are made more arduous because their responsibilities to provide food do not diminish, and their reproductive situations are made more complex. Green Revolution technologies interact with other high-tech industrial production to alter gender divisions of labour and differential gender migration patterns.

The new technologies seem deeply involved in the forms of 'privatization' that Ros Petchesky (1981) has analysed, in which militarization, right-wing family ideologies and policies, and intensified definitions of corporate (and state) property as private synergistically interact. The new communications technologies are fundamental to the eradication of 'public life' for everyone. This facilitates the mushrooming of a permanent high-tech military establishment at the cultural and economic expense of most people, but especially of women. Technologies like video games and highly miniaturized televisions seem crucial to production of modern forms of 'private life'. The culture of video games is heavily orientated to individual competition and extraterrestrial warfare.

High-tech, gendered imaginations are produced here, imaginations that can contemplate destruction of the planet and a sci-fi escape from its consequences. More than our imaginations is militarized; and the other realities of electronic and nuclear warfare are inescapable. These are the technologies that promise ultimate mobility and perfect exchange—and incidentally enable tourism, that perfect practice of mobility and exchange, to emerge as one of the world's largest single industries.

The new technologies affect the social relations of both sexuality and of reproduction, and not always in the same ways. The close ties of sexuality and instrumentality, of views of the body as a kind of private satisfaction- and utility-maximizing machine, are described nicely in sociobiological origin stories that stress a genetic calculus and explain the inevitable dialectic of domination of male and female gender roles. These sociobiological stories depend on a high-tech view of the body as a biotic component or cybernetic communications system. Among the many transformations of reproductive situations is the medical one, where women's bodies have boundaries newly permeable to both 'visualization' and 'intervention'. Of course, who controls the interpretation of bodily boundaries in medical hermeneutics is a major feminist issue. The speculum served as an icon of women's claiming their bodies in the 1970S; that handcraft tool is inadequate to express our needed body politics in the negotiation of reality in the practices of cyborg reproduction. Self-help is not enough. The technologies of visualization recall the important cultural practice of handing with the camera and the deeply predatory nature of a photographic consciousness. Sex, sexuality, and reproduction are central actors in high-tech myth systems structuring our imaginations of personal and social possibility.

Another critical aspect of the social relations of the new technologies is the reformulation of expectations, culture, work, and reproduction for the large scientific and technical work-force. A major social and political danger is the formation of a strongly bimodal social structure, with the masses of women and men of all ethnic groups, but especially people of colour, confined to a homework economy, illiteracy of several varieties, and general redundancy and impotence, controlled by high-tech repressive apparatuses ranging from entertainment to surveillance and disappearance. An adequate socialist-feminist politics should address women in the privileged occupational categories, and particularly in the production of science and technology that constructs scientific-technical discourses, processes, and objects.

This issue is only one aspect of enquiry into the possibility of a feminist science, but it is important. What kind of constitutive role in the production of knowledge, imagination, and practice can new groups doing science have? How can these groups be allied with progressive social and political movements? What kind of political accountability can be constructed to the women together across the scientific-technical hierarchies separating us? Might there be ways of developing feminist science/technology politics in alliance with and-military science facility conversion action groups? Many scientific and technical workers in Silicon Valley, the high-tech cowboys included, do not want to work on military science. Can these personal preferences and cultural tendencies be welded into progressive politics among this professional middle class in which women, including women of colour, are coming to be fairly numerous?

Women in The Integrated Circuit

Let me summarize the picture of women's historical locations in advanced industrial societies, as these positions have been restructured partly through the social relations of science and technology. If it was ever possible ideologically to characterize women's lives by the distinction of public and private domains—suggested by images of the division of working-class life into factory and home, of bourgeois life into market and home, and of gender existence into personal and political realms—it is now a totally misleading ideology, even to show how both terms of these dichotomies construct each other in practice and in theory. I prefer a network ideological image, suggesting the profusion of spaces and identities and the permeability of boundaries in the personal body and in the body politic. 'Networking' is both a feminist practice and a multinational corporate strategy—weaving is for oppositional cyborgs.

So let me return to the earlier image of the informatics of domination and trace one vision of women's 'place' in the integrated circuit, touching only a few idealized social locations seen primarily from the point of view of advanced capitalist societies: Home, Market, Paid Work Place, State, School, Clinic-Hospital, and Church. Each of these idealized spaces is logically and practically implied in every other locus, perhaps analogous to a holographic photograph. I want to suggest the impact of the social relations mediated and enforced by the new technologies in order to help formulate needed analysis and practical work. However, there is no 'place' for women in these networks, only geometries of difference and contradiction crucial to women's cyborg identities. If we learn how to read these webs of power and social life, we might learn new couplings, new coalitions. There is no way to read the following list from a standpoint of 'identification', of a unitary self. The issue is dispersion. The task is to survive in the diaspora.

Home: Women-headed households, serial monogamy, flight of men, old women alone, technology of domestic work, paid homework, re-emergence of home sweat-shops, home-based businesses and telecom-muting, electronic cottage, urban homelessness, migration, module architecture, reinforced (simulated) nuclear family, intense domestic violence.

Market: Women's continuing consumption work, newly targeted to buy the profusion of new production from the new technologies (especially as the competitive race among industrialized and industrializing nations to avoid dangerous mass unemployment necessitates finding ever bigger new markets for ever less clearly needed commodities); bimodal buying power, coupled with advertising targeting of the numerous affluent groups and neglect of the previous mass markets; growing importance of informal markets in labour and commodities parallel to high-tech, affluent market structures; surveillance systems through electronic funds transfer; intensified market abstraction (commodification) of experience, resulting in ineffective utopian or equivalent cynical theories of community; extreme mobility (abstraction) of marketing/financing systems; inter-penetration of sexual and labour markets; intensified sexualization of abstracted and alienated consumption.

Paid Work Place: Continued intense sexual and racial division of labour, but considerable growth of membership in privileged occupational categories for many white women and people of colour; impact of new technologies on women's work in clerical, service, manufacturing (especially textiles), agriculture, electronics; international restructuring of the working classes; development of new time arrangements to facilitate the homework economy (flex time, part time, over time, no

time); homework and out work; increased pressures for two-tiered wage structures; significant numbers of people in cash-dependent populations world-wide with no experience or no further hope of stable employment; most labour 'marginal' or 'feminized'.

State: Continued erosion of the welfare state; decentralizations with increased surveillance and control; citizenship by telematics; imperialism and political power broadly in the form of information rich/information poor differentiation; increased high-tech militarization increasingly opposed by many social groups; reduction of civil service jobs as a result of the growing capital intensification of office work, with implications for occupational mobility for women of colour; growing privatization of material and ideological life and culture; close integration of privatization and militarization, the high-tech forms of bourgeois capitalist personal and public life; invisibility of different social groups to each other, linked to psychological mechanisms of belief in abstract enemies.

School: Deepening coupling of high-tech capital needs and public education at all levels, differentiated by race, class, and gender; managerial classes involved in educational reform and refunding at the cost of remaining progressive educational democratic structures for children and teachers; education for mass ignorance and repression in technocratic and militarized culture; growing and-science mystery cults in dissenting and radical political movements; continued relative scientific illiteracy among white women and people of colour; growing industrial direction of education (especially higher education) by science-based multinationals (particularly in electronics- and biotechnology-dependent companies); highly educated, numerous elites in a progressively bimodal society.

Clinic-hospital: Intensified machine-body relations; renegotiations of public metaphors which channel personal experience of the body, particularly in relation to reproduction, immune system functions, and 'stress' phenomena; intensification of reproductive politics in response to world historical implications of women's unrealized, potential control of their relation to reproduction; emergence of new, historically specific diseases; struggles over meanings and means of health in environments pervaded by high technology products and processes; continuing feminization of health work; intensified struggle over state responsibility for health; continued ideological role of popular health movements as a major form of American politics.

Church: Electronic fundamentalist 'super-saver' preachers solemnizing the union of electronic capital and automated fetish gods; intensified importance of churches in resisting the militarized state; central struggle over women's meanings and authority in religion; continued relevance of spirituality, intertwined with sex and health, in political struggle.

The only way to characterize the informatics of domination is as a massive intensification of insecurity and cultural impoverishment, with common failure of subsistence networks for the most vulnerable. Since much of this picture interweaves with the social relations of science and technology, the urgency of a socialist-feminist politics addressed to science and technology is plain. There is much now being done, and the grounds for political work are rich. For example, the efforts to develop forms of collective struggle for women in paid work, like SEIU's District 925,27 should be a high priority for all of us. These efforts are profoundly deaf to technical

restructuring of labour processes and reformations of working classes. These efforts also are providing understanding of a more comprehensive kind of labour organization, involving community, sexuality, and family issues never privileged in the largely white male industrial unions.

The structural rearrangements related to the social relations of science and technology evoke strong ambivalence. But it is not necessary to be ultimately depressed by the implications of late twentieth-century women's relation to all aspects of work, culture, production of knowledge, sexuality, and reproduction. For excellent reasons, most Marxisms see domination best and have trouble understanding what can only look like false consciousness and people's complicity in their own domination in late capitalism. It is crucial to remember that what is lost, perhaps especially from women's points of view, is often virulent forms of oppression, nostalgically naturalized in the face of current violation. Ambivalence towards the disrupted unities mediated by high-tech culture requires not sorting consciousness into categories of clear-sighted critique grounding a solid political epistemology' versus 'manipulated false consciousness', but subtle understanding of emerging pleasures, experiences, and powers with serious potential for changing the rules of the game.

There are grounds for hope in the emerging bases for new kinds of unity across race, gender, and class, as these elementary units of socialist-feminist analysis themselves suffer protean transformations. Intensifications of hardship experienced world-wide in connection with the social relations of science and technology are severe. But what people are experiencing is not transparently clear, and we lack sufficiently subtle connections for collectively building effective theories of experience. Present efforts—Marxist, psychoanalytic, feminist, anthropological—to clarify even 'our' experience are rudimentary.

I am conscious of the odd perspective provided by my historical position—a PhD in biology for an Irish Catholic girl was made possible by Sputnik's impact on US national science-education policy. I have a body and mind as much constructed by the post-Second World War arms race and cold war as by the women's movements. There are more grounds for hope in focusing on the contradictory effects of politics designed to produce loyal American technocrats, which also produced large numbers of dissidents, than in focusing on the present defeats.

The permanent partiality of feminist points of view has consequences for our expectations of forms of political organization and participation. We do not need a totality in order to work well. The feminist dream of a common language, like all dreams for a perfectly true language, of perfectly faithful naming of experience, is a totalizing and imperialist one. In that sense, dialectics too is a dream language, longing to resolve contradiction. Perhaps, ironically, we can learn from our fusions with animals and machines how not to be Man, the embodiment of Western logos. From the point of view of pleasure in these potent and taboo fusions, made inevitable by the social relations of science and technology, there might indeed be a feminist science.

Cyborgs: A Myth of Political Identity

I want to conclude with a myth about identity and boundaries which might inform late twentieth-century political imaginations (Plate 1). I am indebted in this story to writers like Joanna Russ,

Samuel R. Delany, John Varley, James Tiptree, Jr, Octavia Butler, Monique Wittig, and Vonda Mclntyre. These are our story-tellers exploring what it means to be embodied in high-tech worlds. They are theorists for cyborgs. Exploring conceptions of bodily boundaries and social order, the anthropologist Mary Douglas (1966, 1970) should be credited with helping us to consciousness about how fundamental body imagery is to world view, and so to political language. French feminists like Luce Irigaray and Monique Wittig, for all their differences, know how to write the body; how to weave eroticism, cosmology, and politics from imagery of embodiment, and especially for Wittig, from imagery of fragmentation and reconstitution of bodies. American radical feminists like Susan Griffnn, Audre Lorde, and Adrienne Rich have profoundly affected our political imaginations—and perhaps restricted too much what we allow as a friendly body and political language. They insist on the organic, opposing it to the technological. But their symbolic systems and the related positions of ecofeminism and feminist paganism, replete with organicisms, can only be understood in Sandoval's terms as oppositional ideologies fitting the late twentieth century. They would simply bewilder anyone not preoccupied with the machines and consciousness of late capitalism. In that sense they are part of the cyborg world. But there are also great riches for feminists in explicitly embracing the possibilities inherent in the breakdown of clean distinctions between organism and machine and similar distinctions structuring the Western self. It is the simultaneity of breakdowns that cracks the matrices of domination and opens geometric possibilities. What might be learned from personal and political 'technological' pollution? I look briefly at two overlapping groups of texts for their insight into the construction of a potentially helpful cyborg myth: constructions of women of colour and monstrous selves in feminist science fiction.

Earlier I suggested that 'women of colour' might be understood as a cyborg identity, a potent subjectivity synthesized from fusions of outsider identities and in the complex political-historical layerings of her 'biomythography', Zami (Lorde, 1982; King, 1987a, 1987b). There are material and cultural grids mapping this potential, Audre Lorde (1984) captures the tone in the title of her Sister Outsider. In my political myth, Sister Outsider is the offshore woman, whom US workers, female and feminized, are supposed to regard as the enemy preventing their solidarity, threatening their security. Onshore, inside the boundary of the United States, Sister Outsider is a potential amidst the races and ethnic identities of women manipulated for division, competition, and exploitation in the same industries. 'Women of colour' are the preferred labour force for the science-based industries, the real women for whom the world-wide sexual market, labour market, and politics of reproduction kaleidoscope into daily life. Young Korean women hired in the sex industry and in electronics assembly are recruited from high schools, educated for the integrated circuit. Literacy, especially in English, distinguishes the 'cheap' female labour so attractive to the multinationals.

Contrary to orientalist stereotypes of the 'oral primitive', literacy is a special mark of women of colour, acquired by US black women as well as men through a history of risking death to learn and to teach reading and writing. Writing has a special significance for all colonized groups. Writing has been crucial to the Western myth of the distinction between oral and written cultures, primitive and civilized mentalities, and more recently to the erosion of that distinction in 'postmodernist' theories attacking the phallogocentrism of the West, with its worship of the monotheistic, phallic,

authoritative, and singular work, the unique and perfect name. Contests for the meanings of writing are a major form of contemporary political struggle. Releasing the play of writing is deadly serious. The poetry and stories of US women of colour are repeatedly about writing, about access to the power to signify; but this time that power must be neither phallic nor innocent. Cyborg writing must not be about the Fall, the imagination of a once-upon-a-time wholeness before language, before writing, before Man. Cyborg writing is about the power to survive, not on the basis of original innocence, but on the basis of seizing the tools to mark the world that marked them as other.

The tools are often stories, retold stories, versions that reverse and displace the hierarchical dualisms of naturalized identities. In retelling origin stories, cyborg authors subvert the central myths of origin of Western culture. We have all been colonized by those origin myths, with their longing for fulfilment in apocalypse. The phallogocentric origin stories most crucial for feminist cyborgs are built into the literal technologies—technologies that write the world, biotechnology and microelectronics—that have recently textualized our bodies as code problems on the grid of C3I. Feminist cyborg stories have the task of recoding communication and intelligence to subvert command and control.

Figuratively and literally, language politics pervade the struggles of women of colour; and stories about language have a special power in the rich contemporary writing by US women of colour. For example, retellings of the story of the indigenous woman Malinche, mother of the mestizo 'bastard' race of the new world, master of languages, and mistress of Cortes, carry special meaning for Chicana constructions of identity. Cherrie Moraga (1983) in Loving in the War Years explores the themes of identity when one never possessed the original language, never told the original story, never resided in the harmony of legitimate heterosexuality in the garden of culture, and so cannot base identity on a myth or a fall from innocence and right to natural names, mother's or father's. Moraga's writing, her superb literacy, is presented in her poetry as the same kind of violation as Malinche's mastery of the conqueror's language—a violation, an illegitimate production, that allows survival. Moraga's language is not 'whole'; it is self-consciously spliced, a chimera of English and Spanish, both conqueror's languages. But it is this chimeric monster, without claim to an original language before violation, that crafts the erode, competent, potent identities of women of colour. Sister Outsider hints at the possibility of world survival not because of her innocence, but because of her ability to live on the boundaries, to write without the founding myth of original wholeness, with its inescapable apocalypse of final return to a deathly oneness that Man has imagined to be the innocent and all-powerful Mother, freed at the End from another spiral of appropriation by her son. Writing marks Moraga's body, affirms it as the body of a woman of colour, against the possibility of passing into the unmarked category of the Anglo father or into the orientalist myth of 'original illiteracy' of a mother that never was. Malinche was mother here, not Eve before eating the forbidden fruit. Writing affirms Sister Outsider, not the Woman-before-the-Fall-into-Writing needed by the phallogocentric Family of Man.

Writing is pre-eminently the technology of cyborgs, etched surfaces of the late twentieth century. Cyborg politics is the struggle for language and the struggle against perfect communication, against the one code that translates all meaning perfectly, the central dogma of phallogocentrism.

That is why cyborg politics insist on noise and advocate pollution, rejoicing in the illegitimate fusions of animal and machine. These are the couplings which make Man and Woman so problematic, subverting the structure of desire, the force imagined to generate language and gender, and so subverting the structure and modes of reproduction of 'Western' identity, of nature and culture, of mirror and eye, slave and master, body and mind. 'We' did not originally choose to be cyborgs, but choice grounds a liberal politics and epistemology that imagines the reproduction of individuals before the wider replications of 'texts'.

From the perspective of cyborgs, freed of the need to ground politics in 'our' privileged position of the oppression that incorporates all other dominations, the innocence of the merely violated, the ground of those closer to nature, we can see powerful possibilities. Feminisms and Marxisms have run aground on Western epistemological imperatives to construct a revolutionary subject from the perspective of a hierarchy of oppressions and/or a latent position of moral superiority, innocence, and greater closeness to nature. With no available original dream of a common language or original symbiosis promising protection from hostile 'masculine' separation, but written into the play of a text that has no finally privileged reading or salvation history, to recognize 'oneself' as fully implicated in the world, frees us of the need to root politics in identification, vanguard parties, purity, and mothering. Stripped of identity, the bastard race teaches about the power of the margins and the importance of a mother like Malinche. Women of colour have transformed her from the evil mother of masculinist fear into the originally literate mother who teaches survival.

This is not just literary deconstruction, but liminal transformation. Every, story that begins with original innocence and privileges the return to wholeness imagines the drama of life to be individuation, separation, the birth of the self, the tragedy of autonomy, the fall into writing, alienation; that is, war, tempered by imaginary respite in the bosom of the Other. These plots are ruled by a reproductive politics—rebirth without flaw, perfection, abstraction. In this plot women are imagined either better or worse off, but all agree they have less selfhood, weaker individuation, more fusion to the oral, to Mother, less at stake in masculine autonomy. But there is another route to having less at stake in masculine autonomy, a route that does not pass through Woman, Primitive, Zero, the Mirror Stage and its imaginary. It passes through women and other present-tense, illegitimate cyborgs, not of Woman born, who refuse the ideological resources of victimization so as to have a real life. These cyborgs are the people who refuse to disappear on cue, no matter how many times a 'western' commentator remarks on the sad passing of another primitive, another organic group done in by 'Western' technology, by writing. These real-life cyborgs (for example, the Southeast Asian village women workers in Japanese and US electronics firms described by Aihwa Ong) are actively rewriting the texts of their bodies and societies. Survival is the stakes in this play of readings.

To recapitulate, certain dualisms have been persistent in Western traditions; they have all been systemic to the logics and practices of domination of women, people of colour, nature, workers, animals—in short, domination of all constituted as others, whose task is to mirror the self. Chief among these troubling dualisms are self/other, mind/body, culture/nature, male/female, civilized/primitive, reality/appearance, whole/part, agent/resource, maker/ made, active/passive, right/wrong, truth/illusion, total/partial, God/man. The self is the One who is not dominated, who

knows that by the service of the other, the other is the one who holds the future, who knows that by the experience of domination, which gives the lie to the autonomy of the self. To be One is to be autonomous, to be powerful, to be God; but to be One is to be an illusion, and so to be involved in a dialectic of apocalypse with the other. Yet to be other is to be multiple, without clear boundary, frayed, insubstantial. One is too few, but two are too many.

High-tech culture challenges these dualisms in intriguing ways. It is not clear who makes and who is made in the relation between human and machine. It is not clear what is mind and what body in machines that resolve into coding practices. In so far as we know ourselves in both formal discourse (for example, biology) and in daily practice (for example, the homework economy in the integrated circuit), we find ourselves to be cyborgs, hybrids, mosaics, chimeras. Biological organisms have become biotic systems, communications devices like others. There is no fundamental, ontological separation in our formal knowledge of machine and organism, of technical and organic. The replicant Rachel in the Ridley Scott film Blade Runner stands as the image of a cyborg culture's fear, love, and confusion.

One consequence is that our sense of connection to our tools is heightened. The trance state experienced by many computer users has become a staple of science-fiction film and cultural jokes. Perhaps paraplegics and other severely handicapped people can (and sometimes do) have the most intense experiences of complex hybridization with other communication devices. Anne McCaffrey's pre-feminist The Ship Who Sang (1969) explored the consciousness of a cyborg, hybrid of girl's brain and complex machinery, formed after the birth of a severely handicapped child. Gender, sexuality, embodiment, skill: all were reconstituted in the story. Why should our bodies end at the skin, or include at best other beings encapsulated by skin? From the seventeenth century till now, machines could be animated—given ghostly souls to make them speak or move or to account for their orderly development and mental capacities. Or organisms could be mechanized—reduced to body understood as resource of mind. These machine/ organism relationships are obsolete, unnecessary. For us, in imagination and in other practice, machines can be prosthetic devices, intimate components, friendly selves. We don't need organic holism to give impermeable wholeness, the total woman and her feminist variants (mutants?). Let me conclude this point by a very partial reading of the logic of the cyborg monsters of my second group of texts, feminist science fiction.

The cyborgs populating feminist science fiction make very problematic the statuses of man or woman, human, artefact, member of a race, individual entity, or body. Katie King clarifies how pleasure in reading these fictions is not largely based on identification. Students facing Joanna Russ for the first time, students who have learned to take modernist writers like James Joyce or Virginia Woolf without flinching, do not know what to make of The Adventures of Alyx or The Female Man, where characters refuse the reader's search for innocent wholeness while granting the wish for heroic quests, exuberant eroticism, and serious politics. The Female Man is the story of four versions of one genotype, all of whom meet, but even taken together do not make a whole, resolve the dilemmas of violent moral action, or remove the growing scandal of gender. The feminist science fiction of Samuel R. Delany, especially Tales of Neveyon, mocks stories of origin by redoing the neolithic revolution, replaying the founding moves of Western civilization to

subvert their plausibility. James Tiptree, Jr, an author whose fiction was regarded as particularly manly until her 'true' gender was revealed, tells tales of reproduction based on non-mammalian technologies like alternation of generations of male brood pouches and male nurturing. John Varley constructs a supreme cyborg in his arch-feminist exploration of Gaea, a mad goddess-planet-trickster-old woman-technological device on whose surface an extraordinary array of post-cyborg symbioses are spawned. Octavia Butler writes of an African sorceress pitting her powers of transformation against the genetic manipulations of her rival (Wild Seed), of time warps that bring a modern US black woman into slavery where her actions in relation to her white master-ancestor determine the possibility of her own birth (Kindred), and of the illegitimate insights into identity and community of an adopted cross-species child who came to know the enemy as self (Survivor). In Dawn (1987), the first instalment of a series called Xenogenesis, Butler tells the story of Lilith Iyapo, whose personal name recalls Adam's first and repudiated wife and whose family name marks her status as the widow of the son of Nigerian immigrants to the US. A black woman and a mother whose child is dead, Lilith mediates the transformation of humanity through genetic exchange with extra-terrestrial lovers/rescuers/destroyers/genetic engineers, who reform earth's habitats after the nuclear holocaust and coerce surviving humans into intimate fusion with them. It is a novel that interrogates reproductive, linguistic, and nuclear politics in a mythic field structured by late twentieth-century race and gender.

Because it is particularly rich in boundary transgressions, Vonda McIntyre's Superluminal can close this truncated catalogue of promising and dangerous monsters who help redefine the pleasures and politics of embodiment and feminist writing. In a fiction where no character is 'simply' human, human status is highly problematic. Orca, a genetically altered diver, can speak with killer whales and survive deep ocean conditions, but she longs to explore space as a pilot, necessitating bionic implants jeopardizing her kinship with the divers and cetaceans. Transformations are effected by virus vectors carrying a new developmental code, by transplant surgery, by implants of microelectronic devices, by analogue doubles, and other means. Lacnea becomes a pilot by accepting a heart implant and a host of other alterations allowing survival in transit at speeds exceeding that of light. Radu Dracul survives a virus-caused plague in his outerworld planet to find himself with a time sense that changes the boundaries of spatial perception for the whole species. All the characters explore the limits of language; the dream of communicating experience; and the necessity of limitation, partiality, and intimacy even in this world of protean transformation and connection. Superluminal stands also for the defining contradictions of a cyborg world in another sense; it embodies textually the intersection of feminist theory and colonial discourse in the science fiction I have alluded to in this chapter. This is a conjunction with a long history that many 'First World' feminists have tried to repress, including myself in my readings of Superluminal before being called to account by Zoe Sofoulis, whose different location in the world system's informatics of domination made her acutely alert to the imperialist moment of all science fiction cultures, including women's science fiction. From an Australian feminist sensitivity, Sofoulis remembered more readily McIntyre's role as writer of the adventures of Captain Kirk and Spock in TV's Star Trek series than her rewriting the romance in Superluminal.

Monsters have always defined the limits of community in Western imaginations. The Centaurs and Amazons of ancient Greece established the limits of the centred polls of the Greek male human by their disruption of marriage and boundary pollutions of the warrior with animality and woman. Unseparated twins and hermaphrodites were the confused human material in early modern France who grounded discourse on the natural and supernatural, medical and legal, portents and diseases—all crucial to establishing modern identity. The evolutionary and behavioral sciences of monkeys and apes have marked the multiple boundaries of late twentieth-century industrial identities. Cyborg monsters in feminist science fiction define quite different political possibilities and limits from those proposed by the mundane fiction of Man and Woman.

There are several consequences to taking seriously the imagery of cyborgs as other than our enemies. Our bodies, ourselves; bodies are maps of power and identity. Cyborgs are no exception. A cyborg body is not innocent; it was not born in a garden; it does not seek unitary identity and so generate antagonistic dualisms without end (or until the world ends); it takes irony for granted. One is too few, and two is only one possibility. Intense pleasure in skill, machine skill, ceases to be a sin, but an aspect of embodiment. The machine is not an it to be animated, worshipped, and dominated. The machine is us, our processes, an aspect of our embodiment. We can be responsible for machines; they do not dominate or threaten us. We are responsible for boundaries; we are they. Up till now (once upon a time), female embodiment seemed to be given, organic, necessary; and female embodiment seemed to mean skill in mothering and its metaphoric extensions. Only by being out of place could we take intense pleasure in machines, and then with excuses that this was organic activity after all, appropriate to females. Cyborgs might consider more seriously the partial, fluid, sometimes aspect of sex and sexual embodiment. Gender might not be global identity after all, even if it has profound historical breadth and depth.

The ideologically charged question of what counts as daily activity, as experience, can be approached by exploiting the cyborg image. Feminists have recently claimed that women are given to dailiness, that women more than men somehow sustain daily life, and so have a privileged epistemological position potentially. There is a compelling aspect to this claim, one that makes visible unvalued female activity and names it as the ground of life. But the ground of life? What about all the ignorance of women, all the exclusions and failures of knowledge and skill? What about men's access to daily competence, to knowing how to build things, to take them apart, to play? What about other embodiments? Cyborg gender is a local possibility taking a global vengeance. Race, gender, and capital require a cyborg theory of wholes and parts. There is no drive in cyborgs to produce total theory, but there is an intimate experience of boundaries, their construction and deconstruction. There is a myth system waiting to become a political language to ground one way of looking at science and technology and challenging the informatics of domination—in order to act potently.

One last image organisms and organismic, holistic politics depend on metaphors of rebirth and invariably call on the resources of reproductive sex. I would suggest that cyborgs have more to do with regeneration and are suspicious of the reproductive matrix and of most birthing. For salamanders, regeneration after injury, such as the loss of a limb, involves regrowth of structure and restoration of function with the constant possibility of twinning or other odd topographical

productions at the site of former injury. The regrown limb can be monstrous, duplicated, potent. We have all been injured, profoundly. We require regeneration, not rebirth, and the possibilities for our reconstitution include the utopian dream of the hope for a monstrous world without gender.

Cyborg imagery can help express two crucial arguments in this essay: first, the production of universal, totalizing theory is a major mistake that misses most of reality, probably always, but certainly now; and second, taking responsibility for the social relations of science and technology means refusing an anti-science metaphysics, a demonology of technology, and so means embracing the skillful task of reconstructing the boundaries of daily life, in partial connection with others, in communication with all of our parts. It is not just that science and technology are possible means of great human satisfaction, as well as a matrix of complex dominations. Cyborg imagery can suggest a way out of the maze of dualisms in which we have explained our bodies and our tools to ourselves. This is a dream not of a common language, but of a powerful infidel heteroglossia. It is an imagination of a feminist speaking in tongues to strike fear into the circuits of the supersavers of the new right. It means both building and destroying machines, identities, categories, relationships, space stories. Though both are bound in the spiral dance, I would rather be a cyborg than a goddess.

Science As Radicalism - William Gillis

It's no secret that a good portion of the left today considers science profoundly uncool. A slight affinity with it persists among a majority, but few asides of scorn by the continental philosophers influential in the contemporary leftist canon see spirited response and science's most prominent champions remain dated historical figures like Peter Kropotkin and Élisée Reclus. Indeed there's a lingering whiff of technocratic stodginess and death that the word "science" has never quite shaken. Those leftists most associated with it have a tendency to either be authoritarians looking to legitimize near-fascist narratives, or doe-eyed activists enchanted by saccharine visions of self-managed bureaucracies and The Meeting That Never Ends. To a great many who identify as radicals "science" appears in our lives primarily as a place our various enemies habitually retreat to conjure the authority their shoddy arguments couldn't.

Taken in this light as a sort of nebulous divinity — spoken of with explicit capitalization and the occasional flourishing exclamation mark — "Science!" often strikes like a character in the tales we encounter throughout our life, gradually accumulating a jumble of associations and personality traits. Tales that are almost uniform across our society. Everyone knows the high school story of Science! in rough terms: The belief that the entirety of our reality can be divided up into little atoms and facts. Gleaned from numbers, brutally harvested, and then locked into little jars. Except — the story goes — it's never quite capable of successfully reducing us to these accounting sheets; all it succeeds at is calling for xenocidal policies, unleashing catastrophes, and, in its insane pursuit of infinite knowledge (ie domination) over nature, consuming everything and everyone in its wake. Science! is surely just another way of expressing the logic of empire and capitalism. Science! is a religious institution that brokers no alternatives. Science! is nuclear weapons, GMO killer seeds, animal testing, bulldozers, nazi medical experiments, Jurassic Park, and Christopher Columbus. It may have some more anodyne faces, but the affair as a whole is inseparable from destructive hubris and cold inhumanity.

Once you've seen this pattern or narrative it's all too easy to fit everything into it.

Chances are you don't directly experience science in your everyday life. But you do encounter its glossy logo incessantly. In the news stories trolls cite against you to "prove" something about gender roles. In the stickers on giant technological devices. If it's not sneering Dawkins fans telling you Science! says they're right then it's the horror tales repeated incessantly by a fearful popular culture. We've watched thousands of movies moralizing about "playing god" by seeking understanding, to the point where we just assume such cinematic mistakes are a realistic thing that totally happens. Someone says "the Large Hadron Collider could create a blackhole" and we partially believe them because like we've seen this movie before and further we immediately leap to our Hollywood notion of a "blackhole" where it eats the earth (rather than immediately evaporating into hawking radiation). There's literally a terrorist organization trying to murder graduate students over a fear ("grey goo") they admit they don't understand at all. But again, we've seen this movie.

Okay, sure, scientists may occasionally manage to poke their heads through the media wall and point out that pollution is happening or that actual neuroscience doesn't back patriarchal narratives, but that's clearly just them cleaning up after their colleagues, their own mistakes, their own colonizer logic. So many terrible people cite science as a justification there must be something to it. And who could deny that ozone depletion and deforestation wouldn't have happened in the first place if we weren't making pencils and measuring devices for those scientists to scribble down their findings. (Don't talk to us about scale or ridiculous differences in orders of magnitude! Numbers remind us of how much math class sucked and any reference to scale proves it's "just a matter of degree." And anyway all of industrial society surely depends entirely on all the rest of it! It's a package deal!) Even if Science! has good parts, it surely also has a Dark Side and dare not be let free to its own desires. At best it's a tool capable of some good (if tightly enslaved) and much evil (if embraced for its own sake). But if it is just a tool it's totally the master's tool. And at worst? At worst Science! is an insane power fantasy of our rulers that has motivated and facilitated the enslavement of the entire world.

Science! is — in short — accepted on face value. It is taken more or less as what we see called Science! almost everywhere. An unlucky few of us are granted closer experience, stumbling into soul-sucking engineering jobs for companies or academic sweatshops, specializing in what boils down to optimizing a single widget. Science! is on the nametag. Science! is on the diploma. Science! is on our report. Science! is how our paymasters excuse the damage our widget causes in military or economic application. Science! must surely be this.

You can tell I think this is all patent nonsense. A similar intentionally misattributed and surface-deep tale could be told about "Anarchy" from the newscaster desks to the Hot Topic stickers.

Yet the pull of such narratives are all consuming. And like any good tale, they typically have a wide enough array of moving parts to make any attempt at thorough critique prohibitively involved. Even if you were to examine every association, assumed causation, repeated lie, and misattribution it's unlikely someone enraptured by this narrative would be able to hold it all in their attention at the same time. They'd always feel confident you hadn't addressed enough. And

in the face of such complexity, they might as well default on whatever bundle of associations they already have. In any case this narrative is dressed up as a 'critique' of something presently in power — what? do you oppose critiques? are you defending those in power?? surely the status quo needs no more defenders!

As with conspiracy theories, if you hold a believer's nose to the tricks or holes in their tale they'll sincerely retort that surely every other possible story depends on equivalent slights of hand. Time and time again I hear from hip radicals the same derision with science dressed up as enlightenment: "All models are wrong, it's just that some can be useful self-deceptions." If everything's equally just a myth, equally ungrounded, or politically suspect, you might as well settle on whatever seems like it would be the most useful story given your psychology and context.

A Context of Unending Appropriation

Among other peculiarities I have the dubious distinction of having been raised by a true believer in "Christian Science." If you're unfamiliar with the religion think less Scientology than a cranky first-wave feminist sort of Mormonism. Which is mostly just to say a distinctly 19th century American invention with a tenuous Christian genealogy, conservative aesthetics, and some weird twists into philosophical idealism.

Christian Scientists are most notable for their unique response to the problem of suffering in the presence of an omnipotent god: they respond by disbelieving in suffering. Indeed they disbelieve in the entire material world and sometimes even logic or math. It's one of the cutest tricks in the history of religion and philosophy and I feel bears some horrified appreciation. There's an organized religion in our world with hundreds of thousands of followers founded on an explicit version of immaterialism that would do even George Berkeley proud. If you break your back or are imprisoned by a rapist you can cope by denying that any of that actually exists. The entire material universe in fact is a vicious lie, an error caused by the mistaken thoughts of "mortal mind." There is only God and Her love, everything else is a shared delusion, a consensus reality. Thus, if you're in suffering, disassociate. If you face obstacles, work harder at convincing yourself they're not a problem. If you're privileged, bask in the knowledge that you must be doing something right as a matter of character. It's basically The Secret for 1880s housewives.

Rarely is the core of faith exposed so openly. Christian Science caters to the poor, the mentally ill, and rich conservatives with hippie inclinations. Washington DC is filled with them. My impoverished family was once bizarrely taken yachting by a former assistant director of the CIA.

So if you're going to invent a stripped down version of Christianity that resolves its incoherencies by claiming the universe doesn't exist and expressing distrust if not intense hostility to any sort of hands-on engaging with material reality or even consistent bayesian logic — if you're going to become famous for letting children die rather than concede to basic science — why adopt the label "Science"? Well put simply, in the 1800s when the church's founder Mary Baker Eddy was trying to win over the world, "science" was a popular buzzword with a lot of awe but little public comprehension. (So exactly like today.) The founding saga of Christian Science is that a middle class schizophrenic white girl addicted to morphine slipped and hurt herself, some doctors allegedly told her she would never heal and in a few days she did. Bam. New religion.

There's a couple things to note here.

Even before Baker appropriated the term for herself, the dastardly representatives of "science" in this story, the "doctors" (they were actually homeopaths) had just as brazenly appropriated said mantle for themselves. Little about practiced medicine at the time involved anything remotely close to the kind of knowledge of root causes and relationships that had driven the public stature of "science." Physics and mathematics, with chemistry and some limited realms of biology dogging at their heels, had seen a stunning burst of conceptual developments and dramatic evidence over three centuries. We were old hats at advanced calculus and were sending electric signals across the transatlantic cable — but we didn't even really have the germ theory of disease. Would-be doctors, like everyone else, were trying to position themselves as inheritors and compatriots of if not indistinguishable from physicists. Such baldfaced appropriation of anything garnering respect is venerable tradition and those in power were well-versed long before Baker. From the days of Newton there've been rich statesmen like Francis Bacon leaping to define what those folk garnering respect were really all about and how it could be applied to other things. In fact the barrage of quacks, cultists, con-men, and politicians so dwarfed the numbers of those they were emulating that very quickly they managed to seize the mantle of "science" in the public's eye for all manner of pet projects. It didn't matter that the people five-seconds prior considered scientists emphatically dismissed nonsense like phrenology and other such 'sciences of peoples' as ridiculous, the establishment showered any halfbaked fool willing to defend patriarchy, white supremacy, and capitalism with money and displays of respect. Neither her neighborhood "doctors" nor Mary Baker Eddy herself (the original name she chose for her religion was "Science of Man") were doing anything different than most people throughout modern history; they found something respected or liked for whatever underlying reason and mischaracterized that reason or offered a different explanation so they could hitch their own stuff to it.

But Baker didn't just ride this popular wave of appropriation, she took advantage of the way it muddied the waters to discredit and disregard the original scientists. The rhetorical tactics common in bible study when I was a kid will be familiar to anyone today: Stripping merely brilliant and unparalleled models or insights of their explicit context and assigning them strawman pretensions as Absolute Knowledge; using the shoddy results of appropriators to slander by association the original endeavor; belittling anything too far outside the everyday concepts, experiences, and concerns of those in a certain cultural/economic space… it was a by-the-numbers affair; the same sort of rhetoric you hear from theocrats or nihilist burnouts today. (If the ideologies that use such defenses vary so wildly it's because once you chuck pursuit of coherence and the roots of dynamics you can "argue" any arbitrary position.) The thing is, it worked. It's one thing to latch onto a bigger phenomena in hopes of becoming indistinguishable from it, quite another to use it as a ladder to reach respect and then turn around and try to set that ladder on fire.

Mary Baker Eddy's wild success is a testament to human weakness and oppression. People who have no power, who are trapped or locked out, will go through all kinds of mental gymnastics to avoid coming to terms with their reality. Minds are always looking for avenues of exploration and the only thing more painful than being fundamentally barred is not knowing where to start. Conscious minds can't figure out how to live in stasis and the result of trying is always insanity.

To minimize this as best we can we turn to escapism, we shrink our horizons, we frantically model alternatives in hopes of finding a useful perspective. And when that grows weak we simply deny. There's no way they could know something we don't. No way our abuser or a person with more privilege could have legitimately discovered realities by virtue of their situation. To admit this is to come face to face with the full nature of power and either strip us of hope or open yet another exhausting frontier of conflict.

I single out Christian Science as an illustrative example of the disingenuousness surrounding use of the word "science" in particular because it arose simultaneous with an array of more influential appropriations, from "Social Darwinism" to Comte's "Sociology" to Marx's "Scientific Socialism", at a historical moment when most of the academic categories we know today were being hashed out.

To understand the tangles of philosophical attempts over the last century to define "science" it's important to grasp the context surrounding exactly who got in and who didn't when the modern lines were drawn. In the mid 1800s the explosive cultural force of the Enlightenment had been mostly spent and the social prescriptions of its political ideologues were undeniably losing cachet amid the complexities of industrialization. Mathematics and physics were still accelerating at a breakneck pace but the days when political theorists could pretend to be of the same cloth were fading. Studies were moving out of social halls and into an increasingly segmented academia. In the thereto standard academic distinction social concerns that we'd today classify as economics and sociology were commonsensically denoted as "moral philosophies" — ie. inherently political — while the real drivers of undeniable advances in knowledge like physics and mathematics were "natural philosophies." This distinction within academia brought a clarity that threatened to undermine those forces looking to appropriate intellectual authority.

Thankfully for them there were distinct aesthetic qualities to the arguments of Enlightenment thinkers like Thomas Hobbes that resembled the mathematical proofs and rigorous surveys of early physicists or sought to tenuously extend models within natural philosophy into normative social theories. That was after all the whole game of Hobbes and company. And so eventually the term "science" was settled on as a means by which economists, sociologists and the like could be grouped together with the natural philosophies.

Over the previous centuries, with the decline of tradesmen and the rise of industry, "science" had quietly shifted from an adjective describing the individual cleverness and experiential know-how of craftsmen and artisans to a noun mainly signifying the systematic collection of data. "Science" thus provided an effective way to redefine what exactly was the source of success in the early cluster of physicsy fields, and to blend them with certain moral philosophies (usually wed to the kinds of state power or capital that could perform extensive data collection) into a intentionally hazy and exploitable bundle of popular associations, primarily characterized by an air of inevitability and absolute knowledge.

It's this last impression that still galvanizes people today, often quite violently.

Collecting Facts & Marking The Territory

As you might expect with stakes this high philosophers promptly spent much of the twentieth century squabbling in direct and tangential ways over what qualifies a statement or claim as "scientific", or what counts as a "scientific fact." I'd argue that this approach, while understandable, is ill-conceived.

The project of drawing a boundary between the inside and outside of Science! — a project called the Demarcation Problem — has mostly played out as contests over the mantle of science as an adjective denoting a kind of truth value. Thus for the philosophers and demagogues who have invested so heavily in this battle "science" is primarily viewed in terms of its service or danger as a rhetorical weapon. As something that might be slapped on a statement to make it a certain type of unassailable.

It should thus come as no surprise that virtually none of the most prominent voices in this debate and resulting commentary have been scientists themselves (not that we haven't had strong opinions). And even when the intention of those involved has been good — like finding clear definitions that get evolution and global warming accepted as truthful but not homeopathy — the attempts invariably trend greedy in their praise or dismissal. Either way they often end up claiming fields like psychology and economics as being of the same primary category or essential nature as physics. At the same time almost all of these philosophers and demagogues have felt the need to hobble science lest it get too uppity and say more than they want it to say. There's a widespread and frequently vocalized fear of science ceasing to function as a highly limited tool and instead getting unleashed as an orientation, motivation, or desire.

And so we get the simplistic Baconian picture taught in high schools since the Cold War: Where a limited methodology or proceduralism is almost entirely divorced from context or analysis and held up as the single defining characteristic of Science!. The almost entire process of theory or model development and comparison is handwaved away, and all that's left is data collection and calculation of error bars.

Under this regime science is — at least officially — limited to the smallest of inductive steps forward. There is no space for analysis or models that require a complicated hashing out before data collection. The vast array of analysis of probabilities, bayesian dependencies, contextual considerations, limits, etc. that good scientists crank through — or any serious comparison of differing models, paradigms or lines of investigation prior to data-collection — is waved away as not really core to science. In the methodology picture a miracle occurs whereby some arbitrary hypotheses emerge fully formed — each more or less as a priori good as the next. There is no room for nuanced contextual considerations or the extended development of analysis that does not immediately offer experimentally falsifiable or verifiable predictions, nor any explicitly preferred direction in the winnowing down or comparison of such analysis. All that matters is the data collection and everything else is ultimately treated as a kind of handwavey excuse for it. "Signals" are then found, but how fundamental they are is anyone's guess. Indeed, as an exercise, it can be illustrative to survey the notoriously horrid headlines of pop science and see how many times phrases like "science says" could just as well be replaced with "data says."

This preposterously limited model of science obviously parallels the various currents of panopticon-aspiration we know all too well today, but it has its roots in classical imperialism — not just in the obvious necessity of taking censuses and mapping shorelines, but in the competitive collection of superficial "curiosities" by the upper classes to strengthen hierarchies at home.

It's a sadly underemphasized fact that the aristocracy pioneered aspects of consumerism long before industrialism. In particular many fields that came to be considered "sciences" in the 1800s like lepidoptery were originally launched as fields of curio collecting whereby members of the aristocracy hunted down rare items from around the world and displayed them as one might today display a record collection. The key to understanding this dynamic is that anything with barriers to entry and scarcities can be used as currency to prop up a hierarchy. When the things we might otherwise value become less scarce those invested in social hierarchy itself respond by culturally promoting the valuing of other scarce things.

When — as is common in the modern era — information is made the scarce good, the resulting data collection or generation of lingo & taxonomies need not bare any real relation or insight into what true underlying dynamics are involved, and can happily countenance the most superficial or limited models.

The Roots Of Science

The problem with identifying science in terms of all this is that data collection unto itself doesn't really signify any concept or dynamic of substance. It's hard to realistically speak of there being a passionate movement or culture or ideology or idealism of data collection. And data collection is not in any real sense descriptive of what motivated those original scientists everyone else appropriated from. Any old pile of data might show how particulars happen to be arranged, but alone it offers little insight into how or why. Some statistical analysis on that data might make for good predictions, but only within a certain given context, whose bounds we remain entirely ignorant of. At least without a serious sort of thoughtfulness, the contours of which are blithely ignored by the methodology tale. Incorrect surface-level impressions and models might well be falsifiable, verifiable, etc, yet remain unchallenged outside a given context; how and where we search matters. As do our motivations.

It's easy to apply the trapping of the scientific method — even the broader definitions of science promoted by many philosophers — and end up with little in the way of deep insight. Indeed that's often the point of much that the sticker of "Science!" is slapped upon: to map the world as it is and hide how else it might be or how it might change. Those who are invested in existing systems have little interest in mapping alternate possibilities. And those preoccupied with their own situatedness have little desire to look beyond it or press beyond the effective realm of their understanding.

Thankfully outside a few caricatures in some hilariously detached postmodernist polemics few people widely accepted as scientists today pursue data for data's sake — as the sort of currency or fetishized commodity that so attracts aristocrats, bureaucrats, middle-managers, and hipsters. What motivates us is typically the search for deeper insights and models that might be made clear — to hack our way through the muddled chaos of first impressions, intuitions, and naive beliefs and find the real underlying dynamics of a phenomenon.

This strong, persistent, and near-uniform tendency among scientists is, I would argue, a good starting point for sorting out a clearer perspective on the whole affair.

Sure "science" as a term was championed to facilitate a disingenuous blurring and appropriation — a campaign that created a hazy umbrella of uses in practice, filled with more contradictions and tensions than any clear commonality — but a great deal of shaking-out has occurred since the 1800s. And further many important traits of those originally appropriated from have begun to be internalized by the appropriators. Not enough, obviously — the journals of medicine and the social sciences are still infamously rampant with irreproducible crap — but enough to warrant notice. In no small part because there really was a unifying tendency in the fields everyone else sought to steal legitimacy from. Something deeper than a mere tactic or procedure.

Few would deny physicists are located at the dead center of whatever 'science' supposedly is. (Well okay, the most absurd appropriators like Mary Baker Eddy and Auguste Comte eventually did, but their claims have fared poorly at undermining the historical centrality of physics.) And yet physics is also at the center of a wide and deep tradition within science that is not motivated by shallow data collection and labeling but by getting to the roots. Hence physicists' uniform frustration towards people attempting to derive general rules from surface data on complex systems. And our fury historically at psuedosciences like phrenology that the rest of the world happily accepted as science. Ernest Rutherford's famous cry that "All science is either physics or stamp collecting!" arose deeply embedded in this context.

Our famed "arrogance" in this matter is better understood as an annoyance at the lack of humility or diligence on the part of those making such sweeping statements about macroscopic aggregate systems like human beings. In practice "political science" and the like have often functioned like cargo cult physics, and much of the literature of social science and biology has remained in a continuing crisis as a direct result of their failure to doggedly look for deeper root dynamics and instead just catalog surface impressions. Not to mention their corruption by economic interests seeking to derive useful tools or actionable prescriptions, pressuring them to behave as technologists or engineers rather than inquirers. And so we see within these broken fields an attachment to the scientific method, rather than to what I would term the heart of science. When you don't actually really know why and how something works, just that it in a certain context does — or kinda does — from a bunch of data, you don't have scientific knowledge so much as mere empirical knowledge.

Of course there's certainly space for speaking substantively about messy abstractions like humans and human social relations, and data collection can of course facilitate this. But the frequent lack of humility in the social sciences & chunks of biology— the lack of any honest appreciation and accountability for just how insanely hazy and attenuated most of it is, often dealing entirely in immediate surface impressions — remains stark. While things have certainly gotten better as the rigor of physics and the like has leeched out (in particular see Scott Alexander's impassioned defenses of modern psychiatry and nutrition), significant currents within these fields remain happy to speculate in shallow terms and collect data without any diligent root-seeking or explicit recognition of how tenuous and overly-simple their hypotheses are likely to be.

Digging For The Roots

The fact of the matter is that the remarkably successful phenomenon that the term “Science!” has wrapped itself around is not so much a methodology as an orientation. What was really going on, what is still going on in science that has given it so many great insights is the radicalism of scientists, that is to say their vigilant pursuit after the roots (or ‘radis’). Radicals constantly push our perspectives into extreme or alien contexts until they break or become littered with unwieldy complications, and when such occurs we are happy to shed off the historical baggage entirely and start anew. To not just add caveats upon caveats to an existing model but to sometimes prune them away or throw it all out entirely. Ours is the search for patterns and symmetries that might reflect more universal dynamics rather than merely good rules of thumb within a specific limited context. As any radical knows “good enough” is never actually enough.

To be sure there are naturally going to be certain tactics and strategies that are generally quite useful in such pursuit — some in very deep and inescapable ways — but never any single magically simple and always efficient procedure or methodology.

Kuhn and Feyerabend pointed out half a century ago that no simple set of rules of procedure could explain numerous important instances in the actual history of scientific discovery. Galileo’s heliocentric model for example was among other failings easily and immediately falsified by the astronomical data of the time. Its greater pull lay not in perfectly matching the data, but in an underlying conceptual critique of the arbitrariness of the perpetually added circles-within-circles necessary to prop up a geocentric model. That’s a meaningful critique in terms of the free parameters and kolmogorov complexity, but it’s not reducible to a simple and universally valid procedure or tactic.

Science, in short, is not just mere empiricism, not merely collecting data and doing statistics. Science most critically involves an exploration of possible models, their dependencies, and the many possible vectors by which they might be winnowed down, all in search for the deepest roots. The most universal symmetries, most unique patterns and attractors in the relations of a system. Those often hidden but least moving foundations from which everything else in all its grand complexity can be grown. Our probings are not randomly directed, we pull and tug on our models, see what doesn’t shift about, and re-focus our efforts on it directly.

So for example theories that have internal logical inconsistencies aren’t necessarily dismissed absolutely but they do get focused on far less because such a characteristic (inconsistency) is not rare among possible theories: there are infinitely more possible incoherent theories than possible coherent theories. Incoherency in a theory provides a lot of flexibility — quite a bit of freedom to wriggle it about. Sometimes upon investigation the inconsistent theory will entirely unravel, a phantom temporary knot, not actually a deep root. But sometimes the inconsistency will turn out to be patchable if we give the theory some more attention.

Similarly — in a more practical direction — if an expanse of theories under consideration predict that it’s infinitely more likely that all our memories are lies and we will cease to exist in another instant, we can in some sense abandon such theories. That’s an absolutely real example by the way. There are certain (otherwise perfectly empirically valid models) possible in particle physics

wherein it just so happens that as a consequence of a possible model (with particular field strengths, a geometry of spacetime, etc) it'd be infinitely more likely for a bowl of petunias or a human brain with all of your memories etc to be spontaneously generated out of the quantum vacuum at some point in the infinite history of the universe than for a brain with your memories/feelings/etc to arise in the causal fashion those memories and feelings would suggest. This reductio ad absurdum is called "Boltzmann Brains" and it's engaged with quite seriously and rigorously. It may well be that you have never existed before this moment and will never exist after it, but if so there's no consequence to attempting to spend time modeling that reality or thinking in any direction really. All desires or motivations a mind might have would instantly dead-end in that reality. Thus we consciously mark off those possible physics models that imply such as "not worth dwelling on", invest our attention in other possible models, and call a theory a certain type of 'failed' when it ends up predicting that you're infinitely more likely to be a Boltzmann Brain than a regular one in a regular universe. But we are explicit about that step, and this is what marks scientific knowledge: not a claim about a single true model, but rather an understanding of varying possibilities and their dependencies.

The atomist framework, for instance, bore a lot of fruit and so we sought to push it as far as it could go. And yet in field theory and string theory certain dualities make "fundamental elements" unclear — when two different representations are exactly equivalent to each other in results we arguably can't speak as to which is the "correct" portrait. The nouns we've wrapped as metaphors around the mathematical relationship fall short in their description — these can be either reveal a redundancy in our metaphorical description or a limit to our experimental capacity. But the fundamental relations that duality uncovers is clear as day. This requires a nuance between what the public views as 'reductionism' and what many reductionists view it as. The reductionism of scientists is not a caricature of atomism where all simplified macroscopic layers of abstraction, intuition or practical use are entirely erased. After all having the word "finger" doesn't invalidate our use of "hand" but it does help us remember that there's no magical emergent platonic "handness" resisting or orchestrating the existence of fingers — it's just useful to have language for differing contexts or scales of abstraction. Similarly the objective of reductionism is not to break everything into nounish-pieces or to simplify away complexity, but to unearth fundamental relations/patterns from which everything else can be grown. Whether for instance these patterns take the form of particles, fields or things like symmetry relations.

(Incidentally this is oft repeated in my circles but it really is a goddamn crying shame that few outside of physics have any clue just how dramatically Emmy Noether affected our field. Outsiders talk of Newtonian and Einsteinian paradigms, but the more refined Noetherian paradigm of the universe as a bundle of symmetry relations has ruled physics for almost a century. This injustice to one of the greatest mathematicians of all time is certainly a result of patriarchy but also partially a matter of how much harder her insight is to explain to a general public that has, through a tyrannical, alienating and deeply anti-science education system, been denied familiarity with even basic calculus.)

It's ludicrous to assume that a single hammer, a single obtuse strategy of sharply limited meta-complexity would be capable of entirely mapping the structure of our reality much less narrowing

down fundamental roots. There will of course be complications to our search — things like the Boltzmann Brains — that we must take into consideration in order to do science with any efficiency. But those who want to somehow consign science to empiricism alone do so to artificially preserve their own domains from contact with the scientific drive, from explicitness and analytical rigor in mapping the probabilities and dependencies of different possibilities.

That is not to say that that experimentation, falsifiability, verifiability, etc, don't play quite important roles in practice, but rather that they should be repositioned in our language as strategies we've developed or come to recognize as highly useful in pursuit of science.

The physicist approach — seen to various degrees in other fields — to speak explicitly in terms of what gives rise to the plausibility of a model or research branch rarely bothers with the cartoonish notion of steps and laws taught in high schools. Physicists enjoy an excuse to have a go at the strongest absolutes like entropy or the speed of light. We just keep in mind the complete chain of things implying them. And so while a few have fun going off and publishing some "let's chuck half of everything we know and try over in this direction" papers, even they know it's unbelievably more likely an experimental result indicating a violation of the speed of light reflects a hidden wiring problem in the experimental apparatus than a true violation of special relativity. One can frame this in terms of induction, as "no particle yet observed has gone faster than c", but that's not remotely close to how the arguments go down in practice which take into account the root complexity of various models, their many meta-dimensioned bayesian dependencies, etc.

This might be thought of as a kind of Feyerabend Part II. Yes, 'anything goes', but to varying degrees. In ways deeply dependent upon context. Statistically speaking there's a strong inclination to certain strategies and tactics, and that's good. That's because the radical impulse of science is grounded in bayesian learning, an optimal approach it turns out our neural networks also follow at the smallest level. As in any bayesian system comparisons between models are not arbitrary decisions hidden behind a veil of subjectivity about which we can say nothing. Examining meta-decisions does not oblige suddenly throwing up one's hands and allowing charlatans free reign to claim anything about global warming; we can still trace everything, our entire network of assumptions and weightings, or relations. What defines science — or rather what is the single most important and fundamental dynamic of note within the hazy cluster of shit called "science" — is not so much the strategies and models it has accumulated at any meta-level but the goal of root-pursuing, a drive that hashes through the infinite possible configuration space and gravitates towards a single locus, or sometimes merely to more unique regions or sets of loci.

One might approach this looking for traditional philosophical claims, and say that such an orientation assumes the existence of universal patterns and thus is making a truth claim about reality being consistent, but I think the orientation is better stated as an emergent line of exploration.

If there are literally no universal consistencies then pattern searching is useless because there cannot even be local consistencies. To give an impression of how this works consider if 1+1=2 was only local to some neighborhood: Then you could continuously transform to some other neighborhood where 1+1="duck" and then transform back. If the transforms are always perfect

pullbacks such that 1+1 continues to equal 2 upon returning locally then you've exposed a universal consistency on some meta level that has structure. If not then local consistency dissolves entirely. (In general I abhor mere arithmetic examples as violently misrepresenting the nature of mathematics and implicitly bundling in certain philosophies of mathematics; "1+1=2" should be read as serving in this context only as a loose and popularly accessible metaphor for some manner of local consistency.) My point is that consistency or lack-of-consistency in thought is ultimately radically infectious; there is no middle ground. Upon any motion things either collapse in one direction or the other. And since all intentional action explicitly requires an assumption of some level of consistency, it implicitly assumes a universal consistency — regardless of whether or not the agent has full access to its nature.

We can, in a certain trivial sense, never know anything truly — in an a priori sense. Even Descartes' 'cogito ergo sum' provides no firm ground. The qualia of the act of thought is in many substantive respects suspect; every way we might frame it is laden with baggage of assumptions. The formation of conscious narrative is itself an abstraction that fails at points and dissolves under examination. Even the recursive knowledge of the motion of our own thoughts and self-experience doesn't happen instantaneously, and requires an assumption that our memory or state of mind an instant prior in the loop of recursion is real. There is no winning epistemology. What we can do is identify patterns, make models of dependencies.

Science in no way condemns postulating outside the assumptions that the "external" world is real, that nature really is uniform, etc. Rather scientific or radical thinking very quickly notes just how much of a formless uninteresting arbitrary muck happens beyond those assumptions. As with the Boltzmann Brains we put up a sign and move on.

Similarly the 'problem' of induction is only a problem if you are interested in stating things as though they were laws rather than symmetries, 'absolute truths' rather than patterns. We don't have to make that jump to do science. It's a faint distinction, but one that reveals many confusions that plague philosophy of science. The difference is intent: between understanding/modeling a reality and achieving an ends. Science's goal is not so much to be useful as to give a map of more unique, simple but descriptive, accounts of reality. We may happily mark off some of those accounts as not useful but science retains those accounts. And if multiple theories of similar complexity and arbitrariness give identical predictions or no predictions then they are of less interest than the theory that gives the same predictions but derives such from simpler roots, with less arbitrariness.

An Artificial Distinction

I haven't been making any real distinction so far between mathematics and the sciences, and the above description of science as radicalism obviously places mathematics as a science. This fits the historical arc where "science" was adopted to more widely appropriate the prestige of advances in physics and mathematics, but the saga goes back further. The notion of a distinction between physics and mathematics has always been rather ludicrous and has persisted in the west mostly as an artifact of Greek mysticism and Christian theology. In fact this mistaken deep division between the supposedly "a priori" patterns of math and the a posteriori patterns of physics is arguably

partially responsible for the general paralysis of science in Europe for over a thousand years until Newton and Leibnitz got audacious enough to challenge it. The great advances of math and physics that started in their era on were in no small part tied to the blurring of the two into a single tradition of diligent radical inquiry.

Yet in the great academic reshuffling and sweeping appropriations of the nineteenth century mathematics was rather quietly pushed out of the nest while physics was kept. The broken language that has resulted continually makes for very frustrating conversations. One person declares that obviously mathematics is a science because it involves vigorous modeling and pursuit of elegant fundamentals (in short, because it's radical). Whereas the other person declares that obviously math is part of the humanities as it is not grounded in empirical experimentation "in the physical world."

But of course our brains are part of the physical world. Exploration of all possible theories of formal patterns comprehensible to humans is itself a form of experimentation — essentially a form of experimental computer science — and data collected from such exploration is widely taken as meaningful proof. Mathematicians for instance probe problems of computational complexity and the meta patterns to how these explorations have turned out has been taken as strong evidence of the complexity classes and the incollapsibility of the polynomial hierarchy. This is perfectly reasonable bayesian inference, but it often shocks and offends those outside math and the other hard sciences who've accumulated a very limited notion of what can constitute evidence.

And it's worth pointing out that physicists have always taken doing math to be both a valid realm of experimentation and the twin discipline of physics. V.I. Arnold said it best: "Mathematics is the part of physics where experiments are cheap." In fact the biggest discoveries in physics have often been mathematical reformulations of existing knowledge, from action principles to symmetry relations to modern thermodynamics. Physics often involves momentous discoveries that are not a prediction of empirical data, but a restructuring of how to construct models. Indeed the last couple decades have rapidly dissolved whatever lines had been drawn between mathematics, computer science, and physics. These somewhat separate academic communities are still reeling from the force of dramatic reveal after dramatic reveal. It's been hard for many blindsided specialists to eat humble pie but there's now a widespread awareness that the three fields will have to become deeply interwoven if not altogether indistinguishable in the future.

While there are certainly purist traditions within mathematics clinging to the sort of Diophantine work in the tradition of the Greeks and making snide remarks about calculus, it's even unclear what could possibly constitute a truly "pure" math as there are unlimited possible formalisms or models one can work with. The inescapable fact of the matter is that the various underlying foundations we've gravitated towards choosing (like ZFC Set Theory or the increasingly popular Homology Type Theory) are chosen because the models they generate are better at integrating with our experiences of the world.

When John Preskill said that, "I favor the view that 'Mathematics is Physics' over 'Physics is Mathematics'," he was expressing a relatively common perspective from the trenches that is

nevertheless shocking and transgressive to the peanut gallery commenting on science from without. In no small part because the division is useful to those in power.

In his work The Utopia of Rules David Graeber traced the evolution of popular notions of "imagination" from first being seen as something deeply tied to navigating reality to later something escapist and almost irrelevant. Mathematics has followed a similar arc — redefined partly by the powerful and partly in self-defense as a kind of solipsistic poetry for the boffins whose dreaming we can't control, regulate, or demand immediate results from. In the end this attempt to pluck mathematics out of the heart of science has left it as the only refuge for truly advanced modeling, while those historical forces attempt to suppress such everywhere else.

This artificial exclusion of mathematics from science serves a vision of "science" that ultimately wants scientists to function as nothing more than mechanics and sees the only meaningful exploration as that which can be visibly embodied in a physical experiment. It wants to treat theory as a kind of afterthought or fig leaf, and all twists and turns in the process of theorizing as more or less equivalently suspect, equivalently random flights of fancy. It should be no wonder this kind of categorical framework has been gobbled up by those academics whose experiences are largely limited to those humanities where all theorizing away from immediate experience/experiment is often reasonably seen as more or less equivalently tenuous, or equivalently suspect.

A Universal Current

Under this lens that I have been presenting in a certain sense everything is science and nothing is. The radical inquiry at the core of science doesn't reflect a collection of claims or practices with tightly policeable borders, but a direction, an arrow of struggle or direction of development. And when we recenter 'science' on this current we find it to be a constantly resurgent throughout human history. From the conceptual modeling used by hunter-gatherers to some of those used by the social sciences.

While neuroscience, for example, may not have always been consistently scientific it's clearly become more so over time. Appropriation is a complicated thing; many fields that started out as absurdities have gradually integrated the tools, instincts and ideals of those they were appropriating from. On the other hand chemistry was a science for a long while, and yet is increasingly turning into a technologist discipline interested in engineering particulars, as little in the way of relevant root dynamics remain unferreted. Science and technology have a complicated interplay in practice, a given scientist or technologist or a given research project or development team will sometimes have to switch directions repeatedly. But they still denote distinct vectors, distinct inclinations of thought. One burrows down to the roots, the other takes the simple nutrition from these roots back out and blossoms it into a million applied particulars.

All human thought involves induction or rather association into models. Those instances that feedback into more engagement — rather than defensive mechanisms of retreat to a limited context — are surely in the scientific or radical direction, however tentatively they end up pushing.

I could even sing a sweet song here about how love and empathy should be properly seen as representing the spirit of science in human one-on-one relations; constantly pursuing better

models, better impressions of one another, and updating our models of self to grow more expansive in response. Science and love are very closely related, and a number of jokes in physics and math reflect on the parallels between these hungers. A longing for a deeper intimacy than a shallow surface modeling. That many lovers and scientists shy away or abandon their pursuit past a certain point by no means makes the point at which they end up settling a great reflection of "science" or "love" — the point is the general thrust of their efforts.

It's important to note that every historical moment in every society was alive with flickers of radical exploration, modeling, and discovery. It's easy to gloss over the studious play of crafting that discovered so damn many things, but we are in many unappreciated ways standing on the shoulders of giants. Every single society is thick with knowledge accumulated through experimentation and record. From first hacking our audio cortex with musical notes to developing stronger ropes.

We should be open about the fact that much of the European explosion in science emerged not so much from the onset of a single procedure but through the scrabbling for deeper insights, even through abortive attempts within the tradition of magic and the occult. Those currents that most resemble modern science in Europe, like the development of optics and telescopes, were for a while using the term "natural magic" like Naples' Academy of Secrets. The core element that drove such advances was a suspicion that nature was governed by hidden forces and that these that could be understood. That the secrets could be pried open, deeper underlying patterns revealed. It was this radical drive and fervor in the fringe communities of Europe that helped drive the scientific revolution and really flourished when they were coupled with the printing press' distribution of journals to tradesmen and poor tinkerers who leapt at the chance to contribute theories and findings back.

In resistance some have taken to demonizing everything since the European explosion as "western science" while validating virtually any other explanation of the world as also "science." And while their conclusions that the cosmological models of some random witchdoctor confined in experience to the Kalahari are equivalently valid to those of a modern cosmologist is absurd liberal pluralism, it can be legit to mark both as scientific. Models generated in other cultural or historical contexts certainly count to varying degrees as reflective of the arrow of radicalism. Although it's no small point that any sort of vigilance in today's context should quickly reveal the failings of such models, just as it quickly reveals the failings of those early European "natural magic" theorists. There have absolutely been many brilliant insights around the world and the portrait where "science" doesn't officially start until Francis Bacon decided to lecture physicists on what they were doing is clearly a shitty imperialist narrative.

Mary Baker Eddy's "scientist" "doctors" were certainly far less rigorous or vigilant than many Chinese experimenters in medicine. Indeed Iroquois or Chinese medicine would have been arguably better than the best western doctors of the day. The atomic and fundamental element models postulated by both Indians and Greeks obviously turned out to be pretty close to the mark, but given how little there was to work with back then early Chinese cosmology deserves appreciation as an also ran — the yin-yang and wu xing mode were valid attempts to model the world. And Bacon's methodology and paradigm of experimentation? Alberuni, an Indian Arab,

had pushed for this in the middle ages and the 8-18th centuries in India saw systematic experimentation too. Three thousand years of science in northeast Africa burnt to the ground with Alexandria (the word "chemistry" likely has its roots in a word meaning the knowledge of "the black land"). On and on it goes, the astronomy of the early Chinese, the navigational techniques of Pacific islanders, the ancient medical knowledge of sub-Saharan Africans… Upon any investigation it's simply impossible to paint a picture of a discrete "western science" that is disconnected from this global tendency.

Humans have always played with symmetries and metaphors, trying to internalize better impressions of the world. Much of scientific reasoning is so natural to us because we've been constantly doing it since we were hunter-gatherers. Primitive cosmologies like animism and panpsychism were quite reasonable early hypotheses. We're a social species with brains built primarily to navigate social relations and model psychological dynamics; of course we would search for metaphors there. And those that did should be lauded as doing a decent job in the limited context they had access to.

The deeper regularities immediately visible in things like astronomy have long been interesting to hunter-gatherers, but it was civilization that happened to provide the scope, intellectual permanence and continuity necessary to get further in our investigations. Of course "civilization" is an absurdly simple way of bundling a wide array of deeply conflicting historical currents and dynamics, and what elites emerged in most (but not all) city societies often worked hard to suppress science. Frequently as the first step in undermining radicalism more broadly.

We've covered how "curiosity" was taken by the Victorian aristocracy and draped over shallow and exploitative consumerism. But this attempted appropriation followed another, more dramatic reversal: It was only in the seventeenth century that curiosity had transformed from being seen as a vice to a virtue. Before that watershed "curiosity" had been consistently condemned by western civilization. The Greeks were actually highly critical of curiosity, a tendency they felt was useless, intrusive, and disruptive. Inquiry for its own sake, the hunger for knowledge, was correctly identified it as uncontrollable or prone to wildness. Curiosity was a force in conflict with the ossified and sedentary structures of their civilization. The Christians continued this prohibition and condemnation of curiosity, the desire for knowledge was marked as fundamentally sinful. Rejecting the hunger of inquiry is the very foundation of the myth of The Fall, a narrative repeated in many societies riven with power structures. Once Authority ruled divine and the natural order was unchallenged, then some damned girl got too inquisitive for her britches and God could no longer maintain things the way He liked.

Today's primitivist ideologues emerged from a long genealogy of complaints by the elites that the masses' inquisitive desires constituted a horrifying monster that had to be suppressed at any cost lest it run amok. During the "Enlightenment" Bacon made the argument to his fellow elites that by promoting a rigid systematizing, curiosity after the roots could be harnessed by the state. But Hobbes' contemporaneous attack on scientists for their abstract theories and pursuit of understanding for understanding's sake reflected wider social forces seeking to suppress curiosity and that repeatedly ridiculed them as boffins.

Some scientists persisted nonetheless, but few could be so fortunate or tolerate the poverty and ignominy that would accompany it. Many tried to find excuses or shields against public derision, and thus many fell into collaboration with imperial, capitalist, and aristocratic power systems. You see currents like this again and again throughout the fight between science and power in history, with those in power deeply opposed to hypotheses. Only desiring details.

Physics is intimately aware of this deep and bitter conflict. The second world war saw most of the world's physicists either forced to work as engineers and technologists on weapons or at best starved of funding. And this was paralleled and followed for decades by the widespread blacklisting of the great number of physicists who'd been inclined to radical politics. The legacy of those who embraced their service to the state or crumpled under its thumb has been a vicious hostility towards too sweeping of curiosity, imagination, and extended theorizing within STEM practice. Physicists are today still split between those who approve of or revile the bootlicking slogan from the Manhattan Project: "Shut up and calculate." Variants of this hostility and anxiety towards theory permeate STEM culture, visible in some hackerspaces in the form of "shut up and hack." The cowed timidity and institutional allegiances of engineers and data collectors versus the sweeping and unrelenting audacity of the theoreticians.

The historical arc is clearcut: Whatever complicated entanglements momentarily emerge in their long war, science and power are unavoidably at odds. "I would rather discover a single cause than become king of the Persians," declared Democritus. What science represents is the sharpest sort of radicalism possible, a kind of thinking and a desire in-itself that is indomitable. The externalities of scientific inquiry overturned established power structures and created immense instability and complexities that are hard for power structures to navigate. Those power structures that survived did so by awkwardly clinging to certain predictable processes of change and trying to control and divert the development of science. But even this is often laughable and is certainly unlikely to be sustained.

The Social Context To Our Definitions

This restructuring of how to view science is geared not just at defending science from charges of reactionism from leftists, but at more broadly clarifying how we might view that much looser bundle invoked by the word "science" as a political force. Because the array of things popularly associated with "science" is so wildly varying and hazy most of the political claims surrounding science that don't slice it away to near irrelevance or neutrality as a formulaic procedure have sought to identify underlying ideological commitments and then define "science" in terms of them.

The problem of course has been that those undertaking this kind of analysis (aristocrats, industrialists, liberals, marxists, & continental philosophers) very rarely have a radical bone in their body, and so we see writers lazily claiming that certain popular scientific models or paradigms that emerged briefly and with attendant explicit qualifications are in fact the core driving ideology of science. And of course — if they even note them — the emergence of alternative scientific models is presented as science conceding defeat or pulling itself apart from within. But it's not as though newtonian mechanics were some motivating religion, rather science's drive for the roots

ended up legitimately judging newtonian mechanics as overwhelmingly promising for an extended period of time.

This kind of rabid preoccupation with things like positivism, atomism, and determinism (although almost always wild strawmen thereof) is rife among those coming from an academic or political lineage whose contact with science is Nth-hand at best. See in particular the ongoing cringeworthy hazy-association-fest of lazy psychology leftists have formed around the the word "quantification." (To be sure, as a physicist I make the obligatory sneers and jokes about the aesthetic inferiority of discrete math to continuous math, but come on.) There are clear reverberations of lingering PTSD motivating these defensive obsessions and in some sense that's quite understandable. There has, afterall, been a good few centuries of those in power referencing or extending popular scientific frameworks or theories to prop up terrible ideologies. But to characterize 'science' in terms of those ideologies is akin to characterizing an elephant by the leeches, ticks and flies on its hide. They may have swallowed some tiny bits of it, but that doesn't make them the elephant. And at the end of the day they don't decide where the elephant roams.

Yes, the political, economic, social, and cultural commitments of scientists as a class have in many ways been largely captured and constrained by today's most dominant power structures; just as those unions most critically situated at points of weakness in the system were long ago bought off, lumpenproles defanged with welfare, artists by commerce, etc. Although 'pure science' is constantly being whittled away as capitalism attempts to reshape and replace it by more easily predictable, controllable and overseeable fields of engineering — and basic science education is suppressed or replaced by tradeschool-style training — those who remain have been urged in a multitude of ways to identify with the status quo. It's a simple fact that fewer scientists today face murderous repression from the establishment's fear of disruptive effects. For a first in history the power structures ruling our societies have come to uneasily rely on certain predictable marches of development (although curveballs are still strongly discouraged). And since the creation of the modern academic system most scientists have come to rely on government funding in deeply problematic ways that impede a shift to alternatives. But once identified — less as a structured procedural commitment than a cognitive inclination or orientation of desire — science is exposed as having intense social or political inclinations almost entirely opposed to the interests of science's current benefactors/enslavers.

This recognition is of profound import to anyone looking for allies and fecund frontiers of resistance, and presents a powerful way to push back against those corruptive or appropriative forces that have been exploiting the situation.

I'm interested in this restructuring of our language and narratives around science because as an anarchist I come at science from a stridently idealistic and radical perspective and thus am attracted to those currents within it. But also because — having consequently developed a background in high energy theoretical physics — it's continually astonishing to me the vast disconnect between the analyses of "science" popular within the left and the actual reality in the many fields close to my own work. A lot of what I'm saying is mainstream in physics and has been for a long long time.

While “purity” within the sciences is a widely recognized dynamic and common joke fodder, somehow few philosophers or pundits of science have felt any need to build any recognition of this into their definitions of science, or even mention it. (Richard Dawid deserves special mention here for recently taking some rarely listened to perspectives on science not being equivalent to empiricism common among theoretical physicists and finally giving some of our perspectives a voice in philosophy departments.)

The abusive and unproductive wall erected after the erasure of “natural philosophy” between science (as any immediately testable hypothesis) and philosophy (as literally any theorizing) has pressured scientists to be shortsighted and shallow in their theorizing and given bad philosophical models sufficient buffer from rigor and the march of new discoveries. And when philosophy does come up with anything concrete it’s immediately no longer classified as philosophy! Not only is this unfair but obviously it has a terrible influence upon philosophy!

Of course when philosophy and science aren’t defined in contrast to one another it’s much harder to present some kind of unified Scientist front. A definition of science centered on radical analysis would undermine the “we’re all in this together perspective” that a lot of science communicators have pushed to rally solidarity against attacks and to give disparate researchers a sense of ownership or investment in work beyond their own field. But honestly we shouldn’t have solidarity with many people in the STEM world. We could all do with more clarity about people’s varying underlying motivations and less fuzzy-wuzzy collective identity. If those STEM minds in conservative, religious or anti-intellectual contexts want to huddle around each other for warmth they can surely do so without obscuring important distinctions over motivations and degrees of rootedness. Our language should not be defined in reaction to the Kansas school board.

Tackling Militant Ignorance

Yes, in some immediate sense stepping back from the shallow litmus tests for science weakens our rhetorical toolbox when it comes to rejecting pseudoscience. But I don’t think it’s worth risking our clearheadedness by twisting our conceptual language just to more quickly win some short term battles. We can still grapple with these people directly. Not with “it was peer reviewed! 99% agree!” badgering appeals to democratic morality, but by directly calling out the intellectual laziness of denialists. It’s unfeasible to personally tackle each and every anti-vaxxer, chemtrailer, or cartesian dualist; the amount of energy necessary to generate bullshit is always orders of magnitude less than the amount of energy necessary to refute it. There are maybe ten thousand times more wingnuts with strong opinions about particle physics or neuroscience than there are particle physicists or neuroscientists in the world. We will never beat back all their diverse nonsenses one-on-one in Facebook comment sections, and implicit appeals to social pressure via arguments from ‘scientific consensus’ fail when a climate change denier or quantum mystic is already subject to social pressures of consensus within their more immediate community of fellow wingnuts.

The root problem with the people “contesting” evolution or the big bang or whatever isn’t that they’re doing it the wrong way or using the wrong tools of argumentation; it’s that they don’t actually care about understanding. They care about the sensation of knowing, or the appearance of

iconoclasm, or a fantasy of the gold star they might wrest away from the establishment. Our pluralist liberal society obsesses over the equality of all opinions, in which my ignorance is as good as your knowledge, and consequently in which abusers can never be pinned down because "everything's subjective." We leap to find opinions and then raise them as identity-banners. And so we bristle at the notion of better or more objectively reachable accounts that might disrupt our most fond self-deceptions. The ugly reality is that if people put even the faintest effort into vigilant inquiry we wouldn't be having these debates.

Tackling that means tackling a huge array of social ills.

First and foremost we should be focusing on making the models or arguments we've discovered more accessible. As we lower barriers dramatically there will cease to be any excuse for the smug 37 year old punk with a theory of gravitation as friction. Or the endless barrage of numbskulls in the anarchist milieu — from oogles rejecting treatment for scabies because "science is a religion" to Wolfi citing wildly off base secondhand misaccounts of quantum mechanics and getting lauded for it. Point them to the mappings. Quickly call out the particulars: "Okay, how do you account for __ ?" Scientists already do this by habit.

Often however we utilize existing barriers to entry as a kind of wall slam in people's face. Someone repeats the well popularized woo that quantum mechanics has anything to do with conscious "observers" or the poorly defined notion of "consciousness" itself and we quickly snap that quantum mechanics is a just a theory of complex probabilities, of operators in a hilbert space, and continue rattling off mathematical context until the wingnuts feel sufficiently browbeaten or at least leave us be.

This is highly understandable, and often there's no better tool available to make the frothy nutjob or haughtily ignorant continental philosopher go away, but it is unfortunate. Exploiting unfair existing barriers to scientific knowledge to harangue those on the outside is hardly in keeping with the core idealism of science.

Thankfully there are presently many projects on various levels to restructure every aspect of science as an institution. Peer review, journals, even colleges themselves are under constant criticism and attack in the core of science. And while physicists led the push decades ago to open source everything and bypass or abolish intellectual property, it's well past time to make that material not just available but accessible. Doing this, replacing peer review with more organic, open, and situationally nuanced associative networks of trust and decentralized certification, is no simple task, but many are working on it. Just as many are working to replace the astonishingly primitive technology of pdfs with a richer more deeply tagged and accessible literature, ideally leading to fields of knowledge as mindmapped wikis where dependencies and sources are instantly visible. The solution to people with smugly uninformed opinions is to take away any excuse for their ignorance. To build a culture where our instincts are to just look something up if you're interested in it rather than to try and accumulate 'opinions' from shallow data as though building a record collection.

I've heard people in the left or the supposedly post-left milieu sneer and argue that the deplorable filters of pop science reporting are the fault of scientists, that we are complicit in the whole circus

that leads to horrid phrases like “god particle” and all the narratives that get validated as a result. And there’s an ounce of truth to that. Not in the sense that we scientists presently feel anything other than murderous rage at the pop science media machine, but that there are still many wars for us to win. Thankfully we’re clearly up for the task. I will never forget the day the head of my old department discovered Wikipedia. With bags under his eyes from an all-nighter editing articles he animatedly and earnestly beseeched his statistical mechanics class “Did you all know about this? Why are you all here when you could be at home learning on your own? I wanna blow off my next class to adopt some of my lecture notes! Oh! I guess this means I’m out of a job. Huh. Oh well! Good riddance actually.” All good scientists hunger for the death of academia, in the sense of our present institutional context, this gross distortion, this unnaturally frozen battlefront in the struggle to expand science to everyone. It is unfortunate our relatively recent treaty with the state and other appropriative forces led to an abrupt freeze in the previously exponentially increasing ranks of scientists. We don’t always appreciate this violent pruning of science, the prison signified by our still small numbers, but the loss is astonishing when you plot it out.

I delight at the inevitable accusations of “imperialism!” I will receive for the crime of desiring to persuade people or even make arguments more accessible, but outreach does have to be nuanced. Instead of outright declaring “you should want this” we need to go after the biggest traps people get themselves into. I find myself having to tackle the old “anyone can argue anything!” quite frequently: Well that’s quite a surprisingly strong statement! How do you know every possible perspective is perfectly and evenly mappable into all others? How can you be so certain that when considering every possible meta structure for ‘argumentation’ there are not emergently inferior and superior ones? You seem to be extrapolating very vigorous results from a very small dataset of personal experience!

But there are many more holes people dig themselves into, and some are quite relatable.

Who You Trust Is A Legit Question

The reality is that people not trusting scientists or scientific consensus is in many regards reasonable. What are you going to trust, your eyes and everyday lived experience or a single teacher in school and some nerds online?

Most arguments over catching people up to scientific knowledge usually come down to 1) how integrated a person is with a relevant culture, society and institutions, and 2) how unoppressed they are. There are many other logjams and twisted arguments that can occur, but these tend to be the most primal. If no one you know can in any meaningful way vouch for the stranger thumping on the Particle Data Group book their claims of peer review and the like will appear no different than a theologian claiming to be correct because other theologians have checked. And of course, if you’re locked in modern versions of chattel slavery, exploring the workings of the universe is not really a good strategy for survival; nor will your first instinct be to trust the claimed findings of those who do have that privilege.

Honestly the only reason a good number of folk these days would sneer at anyone saying sun goes round the earth, that Jesus rode dinosaurs, or that the universe is 6,000 years old, or that anthropogenic global warming isn’t real, is that they recognize these claims as cultural cues of

being on ‘the wrong side.’ It’s a not-popular thing. A shun the “outgroup” thing. As such appealing to the spirit of social consensus and democratic moralism is a weapon that will almost always backfire on scientists.

To most of the kids that get shuffled into ‘radical politics’ or the like scientists are the outgroup. The cultural divide that takes root in college between STEM majors and humanities majors has been long cemented and reinforced. And the few scientists in this whole affair tend to sigh and keep their heads down rather than contest every nonsense. Meanwhile expecting someone whose gone through the theoretical and social conditioning of academic fields that practically define themselves by suspicion and hostility to science — someone whose social connections are almost certainly overwhelmingly in the same boat — to just cede before the overwhelming consensus within the scientific community is like telling a FOXnews troglodyte to adopt queer terminology because everyone in San Francisco is doing it. It’s just totally disconnected from the realities of social pressures, and it expects magic from human trust networks.

Why on earth should you trust what one teacher says? Or wikipedia the time you strayed over to it? You don’t have knowledge of the immense amount of work it would take to maintain a false belief within say mathematics journals, so both sides appear roughly equivalent. Science appears to most as just a codification of what’s popular in certain circles except with those people saying “it’s extra true because someone somewhere totally tested it, whatever that means.”

Smart people come up to me and express derision or discomprehension of science all the time. A skilled hacker asks me bemusedly at a party, “so you actually think there’s like truth??” Brilliant girl in my high school chemistry explains why she doesn’t pay attention in class, “Theories in science are always changing, why bother learning one, it’ll be totally different in two hundred years anyway.”

These express themselves as philosophical critiques and sometimes develop into more challenging ones, but they’re grounded in a sense of social alienation and a rebellious dismissal of seemingly arbitrary authority.

It’s not for nothing that one of the most instinctive ways Leftists have interacted with science has been by critiquing sources or playing games of slander by association. “Don’t get me started about Game Theory, it was invented by a paranoid schizophrenic who worked for the government and feared communists.” (Nevermind its parallel discoverers or that game theory has ultimately provided some of the strongest arguments for anarchism and clearest insights into the landscape of challenges we face.) Similarly it’s quite popular today to talk about “cybernetics” and criticize anything that touches information theory by cherrypicking the ideologies and rhetoric of associated parties — an approach that quickly grows so disconnected from the actual reality of the material and field that it starts to sound like conservative rants about “cultural marxism.”

(Although quite a few authoritarians have spun out hopes that it would provide tools for absolute control, cybernetics’ objective success in grasping root dynamics has also revealed profound limits to the information processing capacity of power structures and computational neuroscience has enabled a much richer and more productive ethical discourse. “Cybernetics” in fact is a sweeping term mostly used by its critics. The actual fields bundled up in absurd polemics like Tiqqun’s do

not easily fit in the grand ideological narratives claimed by these critics. Additionally, since every essay on how the 'inherent logic' of cybernetics somehow inexorably saddled us with our current surveillance state loves to point to the reactionary associations of a couple famous researchers, let me point out that one of computational neuroscience's most influential early pioneers, Walter Pitts, was a homeless runaway from a poor family who'd joined a commune of radical supporters of the Spanish Revolution.)

There can be — of course — a sliver of relevance to who the original discoverers are and what assumptions or constrained perspectives may get subtly baked in, but an even remotely scientific field is quite a bit different from say endless discourses on the writings of Heidegger; models and paradigms in science are frequently replaced rather than merely appended with footnotes and there are a multitude of very strong pressures in scientific practice driving researchers toward the same underlying root dynamics. That's the ideal at least. But it's a coherent and substantive ideal that many discourses asymtotically approach and that we are all the better for having a term for.

When alleged 'radicals' these days rail against science what they're typically arguing against — or at least what they get started rallying against — is having to integrate with the social and institutional structures mediating such 'facts'. The semi-ironic embrace of mysticism and the occult among the queer community and twentysomethings more broadly is such a successful sociopolitical signalling game not just because of the boogeyman of Dawkinsite atheists and the broader STEM vs humanities culture war, but because it publicly demonstrates a rejection of the authorities and institutions that have positioned themselves between scientists and just about everyone else.

The error here isn't not trusting the account of those with the right magic words. It's — again — not investigating more thoroughly or proactively. A stark case of Gell-Mann Amnesia whereby people recognize when the institutions of power appropriate and drastically misrepresent one's own team, but then immediately assume those same institutions and media gatekeepers are more or less honest about everyone else. Anarchists are happy to recognize how poorly "anarchy" is represented in the media and how many appropriators are out there, and yet so many of us embarassingly turn around and take representations and claimants of "science" at face value.

Modern liberalism asks us to wrap ourselves in as many flags as possible, to feel entitled to the sense of identity provided by a strong opinion. Doing due diligence by looking at depth into the subject is in no way seen as a prerequisite, and since the goal is social positioning there's no impetus for such investigation.

However I don't highly trust someone's account of a mixing angle because it's spoken in the magic tongue of science, but because I've done a lot of looking into the social and cultural context, because I have many points of contact with it, and thus I know how difficult it would be for a lie to propagate or persist. Further I've compared theories and considerations myself, followed them down into their nitty-gritty and seen just how elegant and more realistic an account is.

And yes there often really is a universally accessible or "objective" direction of "better theory." Although it can be hard to precisely compare two theories roughly close to each other in virtues, a broad gradation between possible models is strongly apparent upon any fucking due diligence.

All this is maddeningly hard to convey to people with a limited vocabulary of experiences to draw upon. You have to go digging around in the systemically impoverished lives of those deprived meaningful contact with science and find the one experience that will make such dynamics clear. Someone to whom all discussion of say 'complexity' is meaningless hot air with no connection to anything in their lives cannot really be expected to fathom any talk of scientific legitimacy outside of experimental validation, and even that is likely to be tough going. Many people in our world lack critical qualia, have never even experienced basic things we take for granted, and it is fiendishly difficult to catch them up. Try explaining turbulence to someone who has never played with water or watched clouds fly by. I've listened to multiple people in various contexts demonstrate that a system is non-linear in a trivial way and then promptly sit back under the impression that such equates unsolvability.

Part of the solution is obviously — as most scientists know and will angrily rant to you at length about — destroying the prison system masquerading as "education." The "disgustingly boring gymnastics used only for punitive purposes," as a mathematical physicist I'm friends with characterized them, that comprise all contact with supposed "mathematics" most students ever have bares as little relation to the actual practice as spelling bees do with literature or poetry. Of course to merely list the myriad failings of how we are "educated" would require the space of a book, so I won't bother trying. But that is only one component of a wide array of ways our present society suffocates and denies access to deep and incredibly important concepts or experiences regarding how the world functions that are necessary to build better intuitions.

And even chucking those is not enough. It would not be enough to burn this horrid system to the ground because many of the monsters impeding access to or understanding of science have sown the ideological seeds of their own upkeep and reestablishment.

It is, after all, not just an education or accessibility problem, it's also a vigilance problem.

So What's The Hold Up?

So why do people fail to even set out on paths of exploration that would eventually lead them to catch up and recognize science? Why do people turn away from radicalism to reactionary perspectives?

What we must remind ourselves is that people will be prompted by their contexts to grow into different cognitive strategies. A child that's beaten for exercising inquisitiveness will quite rationally decide that thinking is a bad strategy in life. It's often quite rational to stop being rational, or at least to abandon intellectual vigilance. (There are many competing popular definitions of "rationality," some expansive to the point where they describe literally all possible developments in a neural net and others far more specific and aspirational, I am not deeply wedded to any one.)

Sometimes when the goal is feeling smart rather than actually being right, the most optimal strategies are postmodern rationalizations that add more and more complications and slippery fallacies of association in a kind of fractal way until it's turtles all the way down and your interlocutor can't vanquish them as fast as you can generate them.

Particularly common in our society is the strategy of enforcing rituals and spectacles of public modesty that aggressively drag yourself and everyone else down to avoid any one of you ever being challenged. Obviously this is the case most of the time when the outraged howls start of "How can you claim to know anything? No one knows anything! You're just a confused slob like the rest of us! How dare you put on airs!" Too frequently people in this situation start talking past each other with entirely different notions of humility.

People are deeply afraid of science's potency. Scratch that, it's much broader: People are deeply afraid of intellectual vigilance. They're afraid of fields they haven't studied. They're afraid people will come at them one day with something from beyond their horizons that overturns and shakes up their core perspectives or narrative of self.

The reason commentators try to fence in science, make it trivial or incidental to our lives is because they can feel the magnitude of its philosophical impacts lurking. There are, after all, no a priori truths. Just deeply seeded priors that can be overruled by sufficient conditions. Physics might very well reveal that causality or time itself don't work the way we develop a working assumption of at a very young age. Physicists are unafraid of overturning the kind of intuitions biology or our formulative experiences have built into us, but for lots of people there's a catastrophic sense of vertigo — and soon after, rage. How dare you!

Yet all we humans ever do is model the world. Even logic and the most cherished axioms are just models that have to be chosen. We see patterns and look for stronger patterns. To discount the search for the strongest possible patterns is to cast oneself to the winds of happenstance. And ultimately it risks unmooring one from any good reason to even believe in other people's existence. If you have some kind of deep assumption about the universe or even how you think and science reveals deep failures of your model or better alternatives you have to postulate an increasingly conspiratorially extended and implausible alternative explanation of how the scientific consensus is rife with somehow systematically unseen failures. Soon you've added piles and piles of redundant or unnecessary complexities, even magical interventions. You are pulled more and more towards solipsism.

And yes, sure, this can feel freeing. People with little agency in their world often find any sensation of 'possibility' freeing, even incorrect or deluded possibility. There's an unlimited number of models incoherent internally or with one's experiences, and they're all relatively easily morphable into one another. This freedom of mind can be exhilarating, but it offers a false and limited freedom, because a failure to understand the world around you means an inability to move it.

The radical impulse is critical. It's long been noted that people with some basic intelligence but no deep drive often realize they can "argue" anything and, upon such realization, stop, failing to examine the meta-characteristics and topologies to such expanses of possible "arguments." Because the utility of vigilance is not immediately obvious their instinct to rigorously examine atrophies and they get away with it by simply upping the complexity until no one can manage to call out all their mistakes. I once heard an 80 year old professor sincerely argue that — never mind their individual persuasiveness or coherency — because he had more distinct arguments for creationism it was therefore correct.

We’re playing the “how can we use words to figure dynamics out” game, but so much of society is instinctively playing the “how can we use words to manipulate and get what we want” game, habits that have been adopted by the naive as well. That sort of thing is not a conversation and it’s certainly not worth bothering with. You can always arbitrarily increase the complexity of a stupid argument to fend off critique. The formula is simple: start with some loud populist appeals to common everyday abstractions, models, or language (however unfounded) and pour on supporting claims and excuses with increasing complexity until challenging them is too exhausting. Through this process you can marshal armies whenever you like.

There are infinite possibilities when you abandon coherence, simplicity and empiricism. But the infinite is boring, it’s a quagmire. What science represents is the winnowing down of the infinite, the pursuit of the most fascinatingly unique possibility (or possibilities).

The problem with Christian Science isn’t that it’s unfalsifiable; falsifiability, while certainly a useful indication, isn’t absolutely critical to science, and there’s nothing unscientific about postulating that the entire world might be an illusion. Even though we may label extensive thinking about it as unfruitful, we still note the possibility and are honest about it. And — as with Boltzmann brains — there are even fringe considerations that could have ramifications or relevance or testability. Thinking about models involving reality being simulated, for example, has prompted people to narrow down possible signatures given certain assumptions regarding the hidden reality that can be compared with experiment. The unscientific leap is just how wildly arbitrary the claims are once you get beyond the mere statement that our entire impression of material reality could be a lie. There’s a very large infinity of possible configurations of hidden realities, of which Christian Science’s claims about God etc are but one. They say suffering is an illusion but why not claim that non-suffering is the illusion? Why not postulate that we’re all in the dream of a cosmic green sheep? Etc.

A model with infinite arbitrary parameters is a bad model. Or at least it’s uninteresting, or a bad model on which to predicate communicating or collaborating with others. Hell, we need to find unique points within the space of possible models that everyone else can identify just to be able to meet each via those frameworks.

‘Christian Scientists’ love to claim that their conclusions follow from a priori introspection, but the more broadly and vigilantly one engages with the world the more one sees just how limited introspection can be and prone to confusion or accidental self delusion. The language of subjective experience and introspection is riddled with errors that it alone is incapable or dramatically inefficient at recognizing. Whereas cognitive science provides us with another useful vantage point to integrate and rectify these mistakes. At the end of the day the presumption of fully a priori meditation is simply not as good a framework as the neurological model and any question you want answered in the former can be revealed through the later as either more efficiently and directly answerable or poorly posed and thus ultimately unanswerable in any model. Consciousness, the self, and the ideological edifices built in the language of subjective experience are in many ways spooks, errors, narrative simplifications with fraying edges to their usefulness upon any close investigation, akin to when marxists talk in mystical ways about Capitalism or primitivists about Civilization as a moving spirit more than the sum of its parts. The entire cartesian

assumption of an a priori vantage point is ultimately a faulty model when examined from all angles or pushed to its breaking points.

Of course someone could retort in a Zerzan-esque vein that the only real reality is immediate sensation and any conceptual processing of that — any modeling of any kind — is the "abstraction." Nevermind how easy it is to verify things like our blind spots and optical processing defects, our immediate sensations or qualia are not just often wrong, they have to be heavily processed by neural columns for us to make sense of them in any way that corresponds to the world we interact with. Indeed the less "modeling" we do the less we'd be able to see or hear. And if you attempt to discount those wellworn insights of neuroscience the number of other things you must discount to do so spreads in effect quite rapidly and dramatically. Especially if you have any instinct towards intellectual vigilance.

There is a kind of circularity here, but it should really be viewed as a matter of feedback. If you're interested in parsing through your sensations in pursuit of deeper relations, you'll discover that any rigorous examination reveals the superficiality of "immediate impressions." And conversely if you wall yourself off from such investigations, if you champion the reactionary ideology that immediatism is all that matters, you can ignore anything else. However there's a difference between these two positions. Radicalism is a stable and attractive equilibrium, whereas reactionism is unstable under perturbation. Once you start investigating you're quite likely to encounter evidence that your immediate impressions are wrong and that deeper dynamics exist, which increases your evaluation of how useful root-seeking is.

However the way from one equilibrium to the other is not always an easy slide. If one revolts at the thought of searching to clarify fundamental dynamics then one will revolt at the very idea of investigating a definition of "science" that isn't all-inclusive of every association, every appropriating charlatan, and every rhetorically dressed up atrocity. What one might call the postmodern instinct has been to reject breaking apart conceptual bundles to identify separable sub-dynamics and instead speak of 'real existing science' — the entirety of everything its name gets slapped on — and look for fuzzy tendencies across this abstraction. This approach takes the macroscopic abstraction as foundational, certain rough commonalities as characteristic qualities, and then handles any exceptions or additional complexities by means of perpetually appending footnotes and excuses. Great for justifying people's preexisting impressions, opinions, or allegiances. Terrible at better mapping the dynamics at play. As such it's incapable of spurring progress or meaningful change.

Conclusion

It goes without saying that we shouldn't waste our lives fighting a war over every preferred definition. Language is often fluid, and not every term can be redeemed. A "language" is often really forked into many simultaneous languages and there can be strategic and empathic virtues in swapping between them. But it's also important to have our terms describe the most meaningful realities or distinct dynamics they can. Gaping conceptual holes, unspoken or unspeakable realities in a given language, can end up having a huge impact in our lives and impeding our capacity to fight. Language determines what we focus on by default, what gets left as awkward addendums,

and thus what loops of debate we most frequently retread trying to get at realities outside the terms we have available.

When possible it’s good practice to shift our language to clearer and more conceptually distinct and workable definitions of terms, regardless of popular associations. This is after all the foundation of our redefinition of anarchy. “Anarchy” is a nebulous word whose use varies wildly. But its most widespread associations beyond the anarchist milieu bundle in the assumption that there can be no freedom from the oppressive dynamics of rulership, that our only speakable choice is between fractured or unified power structures. Anarchism was founded on a revolt against this orwellianism, and it has retained enough distinctiveness to spur resistance to appropriation of that term by neonazis, capitalists, and maoists as our respect has risen.

The situation with science is similar. There is a sharply distinct subset within what gets called “science” who few would deny qualify as science. This subset is a lot more distinct in certain ways that matter than the “any empiricism” set and unfettered by its failings. The present widespread identification of science with the merely anything empirical or data-related consistently invalidates by association the valid work of this subset, for whom there is presently no other identifying term available besides “science.” Further this subset was who science was originally centered on, who it appropriated from, and it’s a subset that has vehemently and vocally resisted the wider definition. It has accumulated various social institutions, cultures, and other parasites around its practice but these are obviously distinct from the core idea.

The science that lies at the core of and drives anything one might call “science” is characterized by a radical impulse: to search for the most deeply rooted patterns, to push beyond the existing or the immediate, into extremes, to look for what can break and how, and to not be afraid of throwing everything out, all in order to better grasp what is possible.

We need to be humble about the complexity of our world, but audacious in searching for models anyway. We must reject the traumatized mewling that “you can’t ever know anything” or the abusive “how dare you compare things” but also shy away from accepting shallow impressions.

This is the beating heart of science and it is what has driven its rise, rectified its mistakes, and continually resisted its capture by power. It is what makes it the most fecund site for resistance in our world today.

The Abolition of Work - Bob Black

No one should ever work.

Work is the source of nearly all the misery in the world. Almost any evil you'd care to name comes from working or from living in a world designed for work. In order to stop suffering, we have to stop working.

That doesn't mean we have to stop doing things. It does mean creating a new way of life based on play; in other words, a *ludic* conviviality, commensality, and maybe even art. There is more to play than child's play, as worthy as that is. I call for a collective adventure in generalized joy and freely interdependent exuberance. Play isn't passive. Doubtless we all need a lot more time for

sheer sloth and slack than we ever enjoy now, regardless of income or occupation, but once recovered from employment-induced exhaustion nearly all of us want to act. Oblomovism and Stakhanovism are two sides of the same debased coin.

The ludic life is totally incompatible with existing reality. So much the worse for "reality," the gravity hole that sucks the vitality from the little in life that still distinguishes it from mere survival. Curiously -- or maybe not -- all the old ideologies are conservative because they believe in work. Some of them, like Marxism and most brands of anarchism, believe in work all the more fiercely because they believe in so little else.

Liberals say we should end employment discrimination. I say we should end employment. Conservatives support right-to-work laws. Following Karl Marx's wayward son-in-law Paul Lafargue I support the right to be lazy. Leftists favor full employment. Like the surrealists -- except that I'm not kidding -- I favor full *un*employment. Trotskyists agitate for permanent revolution. I agitate for permanent revelry. But if all the ideologues (as they do) advocate work -- and not only because they plan to make other people do theirs -- they are strangely reluctant to say so. They will carry on endlessly about wages, hours, working conditions, exploitation, productivity, profitability. They'll gladly talk about anything but work itself. These experts who offer to do our thinking for us rarely share their conclusions about work, for all its saliency in the lives of all of us. Among themselves they quibble over the details. Unions and management agree that we ought to sell the time of our lives in exchange for survival, although they haggle over the price. Marxists think we should be bossed by bureaucrats. Libertarians think we should be bossed by businessmen. Feminists don't care which form bossing takes so long as the bosses are women. Clearly these ideology-mongers have serious differences over how to divvy up the spoils of power. Just as clearly, none of them have any objection to power as such and all of them want to keep us working.

You may be wondering if I'm joking or serious. I'm joking *and* serious. To be ludic is not to be ludicrous. Play doesn't have to be frivolous, although frivolity isn't triviality: very often we ought to take frivolity seriously. I'd like life to be a game -- but a game with high stakes. I want to play *for* *keeps*.

The alternative to work isn't just idleness. To be ludic is not to be quaaludic. As much as I treasure the pleasure of torpor, it's never more rewarding than when it punctuates other pleasures and pastimes. Nor am I promoting the managed time-disciplined safety-valve called "leisure"; far from it. Leisure is nonwork for the sake of work. Leisure is the time spent recovering from work and in the frenzied but hopeless attempt to forget about work. Many people return from vacation so beat that they look forward to returning to work so they can rest up. The main difference between work and leisure is that work at least you get paid for your alienation and enervation.

I am not playing definitional games with anybody. When I say I want to abolish work, I mean just what I say, but I want to say what I mean by defining my terms in non-idiosyncratic ways. My minimum definition of work is *forced* *labor*, that is, compulsory production. Both elements are essential. Work is production enforced by economic or political means, by the carrot or the stick. (The carrot is just the stick by other means.) But not all creation is work. Work is never done for its own sake, it's done on account of some product or output that the worker (or, more often,

somebody else) gets out of it. This is what work necessarily is. To define it is to despise it. But work is usually even worse than its definition decrees. The dynamic of domination intrinsic to work tends over time toward elaboration. In advanced work-riddled societies, including all industrial societies whether capitalist of "Communist," work invariably acquires other attributes which accentuate its obnoxiousness.

Usually -- and this is even more true in "Communist" than capitalist countries, where the state is almost the only employer and everyone is an employee -- work is employment, i. e., wage-labor, which means selling yourself on the installment plan. Thus 95% of Americans who work, work for somebody (or some*thing*) else. In the USSR or Cuba or Yugoslavia or any other alternative model which might be adduced, the corresponding figure approaches 100%. Only the embattled Third World peasant bastions -- Mexico, India, Brazil, Turkey -- temporarily shelter significant concentrations of agriculturists who perpetuate the traditional arrangement of most laborers in the last several millenia, the payment of taxes (= ransom) to the state or rent to parasitic landlords in return for being otherwise left alone. Even this raw deal is beginning to look good. *All* industrial (and office) workers are employees and under the sort of surveillance which ensures servility.

But modern work has worse implications. People don't just work, they have "jobs." One person does one productive task all the time on an or-else basis. Even if the task has a quantum of intrinsic interest (as increasingly many jobs don't) the monotony of its obligatory exclusivity drains its ludic potential. A "job" that might engage the energies of some people, for a reasonably limited time, for the fun of it, is just a burden on those who have to do it for forty hours a week with no say in how it should be done, for the profit of owners who contribute nothing to the project, and with no opportunity for sharing tasks or spreading the work among those who actually have to do it. This is the real world of work: a world of bureaucratic blundering, of sexual harassment and discrimination, of bonehead bosses exploiting and scapegoating their subordinates who -- by any rational-technical criteria -- should be calling the shots. But capitalism in the real world subordinates the rational maximization of productivity and profit to the exigencies of organizational control.

The degradation which most workers experience on the job is the sum of assorted indignities which can be denominated as "discipline." Foucault has complexified this phenomenon but it is simple enough. Discipline consists of the totality of totalitarian controls at the workplace -- surveillance, rotework, imposed work tempos, production quotas, punching -in and -out, etc. Discipline is what the factory and the office and the store share with the prison and the school and the mental hospital. It is something historically original and horrible. It was beyond the capacities of such demonic dictators of yore as Nero and Genghis Khan and Ivan the Terrible. For all their bad intentions they just didn't have the machinery to control their subjects as thoroughly as modern despots do. Discipline is the distinctively diabolical modern mode of control, it is an innovative intrusion which must be interdicted at the earliest opportunity.

Such is "work." Play is just the opposite. Play is always voluntary. What might otherwise be play is work if it's forced. This is axiomatic. Bernie de Koven has defined play as the "suspension of consequences." This is unacceptable if it implies that play is inconsequential. The point is not that play is without consequences. This is to demean play. The point is that the consequences, if any,

are gratuitous. Playing and giving are closely related, they are the behavioral and transactional facets of the same impulse, the play-instinct. They share an aristocratic disdain for results. The player gets something out of playing; that's why he plays. But the core reward is the experience of the activity itself (whatever it is). Some otherwise attentive students of play, like Johan Huizinga (*Homo* *Ludens*), *define* it as game-playing or following rules. I respect Huizinga's erudition but emphatically reject his constraints. There are many good games (chess, baseball, Monopoly, bridge) which are rule-governed but there is much more to play than game-playing. Conversation, sex, dancing, travel -- these practices aren't rule-governed but they are surely play if anything is. And rules can be *played* *with* at least as readily as anything else.

Work makes a mockery of freedom. The official line is that we all have rights and live in a democracy. Other unfortunates who aren't free like we are have to live in police states. These victims obey orders or-else, no matter how arbitrary. The authorities keep them under regular surveillance. State bureaucrats control even the smaller details of everyday life. The officials who push them around are answerable only to higher-ups, public or private. Either way, dissent and disobedience are punished. Informers report regularly to the authorities. All this is supposed to be a very bad thing.

And so it is, although it is nothing but a description of the modern workplace. The liberals and conservatives and libertarians who lament totalitarianism are phonies and hypocrites. There is more freedom in any moderately deStalinized dictatorship than there is in the ordinary American workplace. You find the same sort of hierarchy and discipline in an office or factory as you do in a prison or monastery. In fact, as Foucault and others have shown, prisons and factories came in at about the same time, and their operators consciously borrowed from each other's control techniques. A worker is a par-time slave. The boss says when to show up, when to leave, and what to do in the meantime. He tells you how much work to do and how fast. He is free to carry his control to humiliating extremes, regulating, if he feels like it, the clothes you wear or how often you go to the bathroom. With a few exceptions he can fire you for any reason, or no reason. He has you spied on by snitches and supervisors, he amasses a dossier on every employee. Talking back is called "insubordination," just as if a worker is a naughty child, and it not only gets you fired, it disqualifies you for unemployment compensation. Without necessarily endorsing it for them either, it is noteworthy that children at home and in school receive much the same treatment, justified in their case by their supposed immaturity. What does this say about their parents and teachers who work?

The demeaning system of domination I've described rules over half the waking hours of a majority of women and the vast majority of men for decades, for most of their lifespans. For certain purposes it's not too misleading to call our system democracy or capitalism or -- better still -- industrialism, but its real names are factory fascism and office oligarchy. Anybody who says these people are "free" is lying or stupid. You are what you do. If you do boring, stupid monotonous work, chances are you'll end up boring, stupid and monotonous. Work is a much better explanation for the creeping cretinization all around us than even such significant moronizing mechanisms as television and education. People who are regimented all their lives, handed off to work from school and bracketed by the family in the beginning and the nursing home at the end, are habituated to

heirarchy and psychologically enslaved. Their aptitude for autonomy is so atrophied that their fear of freedom is among their few rationally grounded phobias. Their obedience training at work carries over into the families *they* start, thus reproducing the system in more ways than one, and into politics, culture and everything else. Once you drain the vitality from people at work, they'll likely submit to heirarchy and expertise in everything. They're used to it.

We are so close to the world of work that we can't see what it does to us. We have to rely on outside observers from other times or other cultures to appreciate the extremity and the pathology of our present position. There was a time in our own past when the "work ethic" would have been incomprehensible, and perhaps Weber was on to something when he tied its appearance to a religion, Calvinism, which if it emerged today instead of four centuries ago would immediately and appropriately be labeled a cult. Be that as it may, we have only to draw upon the wisdom of antiquity to put work in perspective. The ancients saw work for what it is, and their view prevailed, the Calvinist cranks notwithstanding, until overthrown by industrialism -- but not before receiving the endorsement of its prophets.

Let's pretend for a moment that work doesn't turn people into stultified submissives. Let's pretend, in defiance of any plausible psychology and the ideology of its boosters, that it has no effect on the formation of character. And let's pretend that work isn't as boring and tiring and humiliating as we all know it really is. Even then, work would *still* make a mockery of all humanistic and democratic aspirations, just because it usurps so much of our time. Socrates said that manual laborers make bad friends and bad citizens because they have no time to fulfill the responsibilities of friendship and citizenship. He was right. Because of work, no matter what we do we keep looking at out watches. The only thing "free" about so-called free time is that it doesn't cost the boss anything. Free time is mostly devoted to getting ready for work, going to work, returning from work, and recovering from work. Free time is a euphemism for the peculiar way labor as a factor of production not only transports itself at its own expense to and from the workplace but assumes primary responsibility for its own maintenance and repair. Coal and steel don't do that. Lathes and typewriters don't do that. But workers do. No wonder Edward G. Robinson in one of his gangster movies exclaimed, "Work is for saps!"

Both Plato and Xenophon attribute to Socrates and obviously share with him an awareness of the destructive effects of work on the worker as a citizen and a human being. Herodotus identified contempt for work as an attribute of the classical Greeks at the zenith of their culture. To take only one Roman example, Cicero said that "whoever gives his labor for money sells himself and puts himself in the rank of slaves." His candor is now rare, but contemporary primitive societies which we are wont to look down upon have provided spokesmen who have enlightened Western anthropologists. The Kapauku of West Irian, according to Posposil, have a conception of balance in life and accordingly work only every other day, the day of rest designed "to regain the lost power and health." Our ancestors, even as late as the eighteenth century when they were far along the path to our present predicament, at least were aware of what we have forgotten, the underside of industrialization. Their religious devotion to "St. Monday" -- thus establishing a *de* *facto* five-day week 150-200 years before its legal consecration -- was the despair of the earliest factory owners. They took a long time in submitting to the tyranny of the bell, predecessor of the time

clock. In fact it was necessary for a generation or two to replace adult males with women accustomed to obedience and children who could be molded to fit industrial needs. Even the exploited peasants of the *ancien* *regime* wrested substantial time back from their landlord's work. According to Lafargue, a fourth of the French peasants' calendar was devoted to Sundays and holidays, and Chayanov's figures from villages in Czarist Russia -- hardly a progressive society -- likewise show a fourth or fifth of peasants' days devoted to repose. Controlling for productivity, we are obviously far behind these backward societies. The exploited *muzhiks* would wonder why any of us are working at all. So should we.

To grasp the full enormity of our deterioration, however, consider the earliest condition of humanity, without government or property, when we wandered as hunter-gatherers. Hobbes surmised that life was then nasty, brutish and short. Others assume that life was a desperate unremitting struggle for subsistence, a war waged against a harsh Nature with death and disaster awaiting the unlucky or anyone who was unequal to the challenge of the struggle for existence. Actually, that was all a projection of fears for the collapse of government authority over communities unaccustomed to doing without it, like the England of Hobbes during the Civil War. Hobbes' compatriots had already encountered alternative forms of society which illustrated other ways of life -- in North America, particularly -- but already these were too remote from their experience to be understandable. (The lower orders, closer to the condition of the Indians, understood it better and often found it attractive. Throughout the seventeenth century, English settlers defected to Indian tribes or, captured in war, refused to return. But the Indians no more defected to white settlements than Germans climb the Berlin Wall from the west.) The "survival of the fittest" version -- the Thomas Huxley version -- of Darwinism was a better account of economic conditions in Victorian England than it was of natural selection, as the anarchist Kropotkin showed in his book *Mutual* *Aid,* *A* *Factor* *of* *Evolution*. (Kropotkin was a scientist -- a geographer -- who'd had ample involuntary opportunity for fieldwork whilst exiled in Siberia: he knew what he was talking about.) Like most social and political theory, the story Hobbes and his successors told was really unacknowledged autobiography.

The anthropologist Marshall Sahlins, surveying the data on contemporary hunter-gatherers, exploded the Hobbesian myth in an article entitled "The Original Affluent Society." They work a lot less than we do, and their work is hard to distinguish from what we regard as play. Sahlins concluded that "hunters and gatherers work less than we do; and rather than a continuous travail, the food quest is intermittent, leisure abundant, and there is a greater amount of sleep in the daytime per capita per year than in any other condition of society." They worked an average of four hours a day, assuming they were "working" at all. Their "labor," as it appears to us, was skilled labor which exercised their physical and intellectual capacities; unskilled labor on any large scale, as Sahlins says, is impossible except under industrialism. Thus it satisfied Friedrich Schiller's definition of play, the only occasion on which man realizes his complete humanity by giving full "play" to both sides of his twofold nature, thinking and feeling. As he put it: "The animal *works* when deprivation is the mainspring of its activity, and it *plays* when the fullness of its strength is this mainspring, when superabundant life is its own stimulus to activity." (A modern version -- dubiously developmental -- is Abraham Maslow's counterposition of "deficiency" and "growth" motivation.) Play and freedom are, as regards production, coextensive. Even Marx, who belongs

(for all his good intentions) in the productivist pantheon, observed that "the realm of freedom does not commence until the point is passed where labor under the compulsion of necessity and external utility is required." He never could quite bring himself to identify this happy circumstance as what it is, the abolition of work -- it's rather anomalous, after all, to be pro-worker and anti-work -- but we can.

The aspiration to go backwards or forwards to a life without work is evident in every serious social or cultural history of pre-industrial Europe, among them M. Dorothy George's *England* In* *Transition* and Peter Burke's *Popular* *Culture* *in* *Early* *Modern* *Europe*. Also pertinent is Daniel Bell's essay, "Work and its Discontents," the first text, I believe, to refer to the "revolt against work" in so many words and, had it been understood, an important correction to the complacency ordinarily associated with the volume in which it was collected, *The* *End* *of* *Ideology*. Neither critics nor celebrants have noticed that Bell's end-of-ideology thesis signaled not the end of social unrest but the beginning of a new, uncharted phase unconstrained and uninformed by ideology. It was Seymour Lipset (in *Political* *Man*), not Bell, who announced at the same time that "the fundamental problems of the Industrial Revolution have been solved," only a few years before the post- or meta-industrial discontents of college students drove Lipset from UC Berkeley to the relative (and temporary) tranquility of Harvard.

As Bell notes, Adam Smith in *The* *Wealth* *of* *Nations*, for all his enthusiasm for the market and the division of labor, was more alert to (and more honest about) the seamy side of work than Ayn Rand or the Chicago economists or any of Smith's modern epigones. As Smith observed: "The understandings of the greater part of men are necessarily formed by their ordinary employments. The man whose life is spent in performing a few simple operations... has no occasion to exert his understanding... He generally becomes as stupid and ignorant as it is possible for a human creature to become." Here, in a few blunt words, is my critique of work. Bell, writing in 1956, the Golden Age of Eisenhower imbecility and American self-satisfaction, identified the unorganized, unorganizable malaise of the 1970's and since, the one no political tendency is able to harness, the one identified in HEW's report *Work* *in* *America*, the one which cannot be exploited and so is ignored. That problem is the revolt against work. It does not figure in any text by any laissez-faire economist -- Milton Friedman, Murray Rothbard, Richard Posner -- because, in their terms, as they used to say on *Star* *Trek*, "it does not compute."

If these objections, informed by the love of liberty, fail to persuade humanists of a utilitarian or even paternalist turn, there are others which they cannot disregard. Work is hazardous to your health, to borrow a book title. In fact, work is mass murder or genocide. Directly or indirectly, work will kill most of the people who read these words. Between 14,000 and 25,000 workers are killed annually in this country on the job. Over two million are disabled. Twenty to twenty-five million are injured every year. And these figures are based on a very conservative estimation of what constitutes a work-related injury. Thus they don't count the half million cases of occupational disease every year. I looked at one medical textbook on occupational diseases which was 1,200 pages long. Even this barely scratches the surface. The available statistics count the obvious cases like the 100,000 miners who have black lung disease, of whom 4,000 die every year, a much higher fatality rate than for AIDS, for instance, which gets so much media attention. This reflects the

unvoiced assumption that AIDS afflicts perverts who could control their depravity whereas coal-mining is a sacrosanct activity beyond question. What the statistics don't show is that tens of millions of people have heir lifespans shortened by work -- which is all that homicide means, after all. Consider the doctors who work themselves to death in their 50's. Consider all the other workaholics.

Even if you aren't killed or crippled while actually working, you very well might be while going to work, coming from work, looking for work, or trying to forget about work. The vast majority of victims of the automobile are either doing one of these work-obligatory activities or else fall afoul of those who do them. To this augmented body-count must be added the victims of auto-industrial pollution and work-induced alcoholism and drug addiction. Both cancer and heart disease are modern afflictions normally traceable, directly, or indirectly, to work.

Work, then, institutionalizes homicide as a way of life. People think the Cambodians were crazy for exterminating themselves, but are we any different? The Pol Pot regime at least had a vision, however blurred, of an egalitarian society. We kill people in the six-figure range (at least) in order to sell Big Macs and Cadillacs to the survivors. Our forty or fifty thousand annual highway fatalities are victims, not martyrs. They died for nothing -- or rather, they died for work. But work is nothing to die for.

Bad news for liberals: regulatory tinkering is useless in this life-and-death context. The federal Occupational Safety and Health Administration was designed to police the core part of the problem, workplace safety. Even before Reagan and the Supreme Court stifled it, OSHA was a farce. At previous and (by current standards) generous Carter-era funding levels, a workplace could expect a random visit from an OSHA inspector once every 46 years.

State control of the economy is no solution. Work is, if anything, more dangerous in the state-socialist countries than it is here. Thousands of Russian workers were killed or injured building the Moscow subway. Stories reverberate about covered-up Soviet nuclear disasters which make Times Beach and Three-Mile Island look like elementary-school air-raid drills. On the other hand, deregulation, currently fashionable, won't help and will probably hurt. From a health and safety standpoint, among others, work was at its worst in the days when the economy most closely approximated laissez-faire.

Historians like Eugene Genovese have argued persuasively that -- as antebellum slavery apologists insisted -- factory wage-workers in the Northern American states and in Europe were worse off than Southern plantation slaves. No rearrangement of relations among bureaucrats and businessmen seems to make much difference at the point of production. Serious enforcement of even the rather vague standards enforceable in theory by OSHA would probably bring the economy to a standstill. The enforcers apparently appreciate this, since they don't even try to crack down on most malefactors.

What I've said so far ought not to be controversial. Many workers are fed up with work. There are high and rising rates of absenteeism, turnover, employee theft and sabotage, wildcat strikes, and overall goldbricking on the job. There may be some movement toward a conscious and not just

visceral rejection of work. And yet the prevalent feeling, universal among bosses and their agents and also widespread among workers themselves is that work itself is inevitable and necessary.

I disagree. It is now possible to abolish work and replace it, insofar as it serves useful purposes, with a multitude of new kinds of free activities. To abolish work requires going at it from two directions, quantitative and qualitative. On the one hand, on the quantitative side, we have to cut down massively on the amount of work being done. At present most work is useless or worse and we should simply get rid of it. On the other hand -- and I think this the crux of the matter and the revolutionary new departure -- we have to take what useful work remains and transform it into a pleasing variety of game-like and craft-like pastimes, indistinguishable from other pleasurable pastimes, except that they happen to yield useful end-products. Surely that shouldn't make them *less* enticing to do. Then all the artificial barriers of power and property could come down. Creation could become recreation. And we could all stop being afraid of each other.

I don't suggest that most work is salvageable in this way. But then most work isn't worth trying to save. Only a small and diminishing fraction of work serves any useful purpose independent of the defense and reproduction of the work-system and its political and legal appendages. Twenty years ago, Paul and Percival Goodman estimated that just five percent of the work then being done -- presumably the figure, if accurate, is lower now -- would satisfy our minimal needs for food, clothing, and shelter. Theirs was only an educated guess but the main point is quite clear: directly or indirectly, most work serves the unproductive purposes of commerce or social control. Right off the bat we can liberate tens of millions of salesmen, soldiers, managers, cops, stockbrokers, clergymen, bankers, lawyers, teachers, landlords, security guards, ad-men and everyone who works for them. There is a snowball effect since every time you idle some bigshot you liberate his flunkeys and underlings also. Thus the economy *implodes*.

Forty percent of the workforce are white-collar workers, most of whom have some of the most tedious and idiotic jobs ever concocted. Entire industries, insurance and banking and real estate for instance, consist of nothing but useless paper-shuffling. It is no accident that the "tertiary sector," the service sector, is growing while the "secondary sector" (industry) stagnates and the "primary sector" (agriculture) nearly disappears. Because work is unnecessary except to those whose power it secures, workers are shifted from relatively useful to relatively useless occupations as a measure to assure public order. Anything is better than nothing. That's why you can't go home just because you finish early. They want your *time*, enough of it to make you theirs, even if they have no use for most of it. Otherwise why hasn't the average work week gone down by more than a few minutes in the past fifty years?

Next we can take a meat-cleaver to production work itself. No more war production, nuclear power, junk food, feminine hygiene deodorant -- and above all, no more auto industry to speak of. An occasional Stanley Steamer or Model-T might be all right, but the auto-eroticism on which such pestholes as Detroit and Los Angeles depend on is out of the question. Already, without even trying, we've virtually solved the energy crisis, the environmental crisis and assorted other insoluble social problems.

Finally, we must do away with far and away the largest occupation, the one with the longest hours, the lowest pay and some of the most tedious tasks around. I refer to *housewives* doing housework and child-rearing. By abolishing wage-labor and achieving full unemployment we undermine the sexual division of labor. The nuclear family as we know it is an inevitable adaptation to the division of labor imposed by modern wage-work. Like it or not, as things have been for the last century or two it is economically rational for the man to bring home the bacon, for the woman to do the shitwork to provide him with a haven in a heartless world, and for the children to be marched off to youth concentration camps called "schools," primarily to keep them out of Mom's hair but still under control, but incidentally to acquire the habits of obedience and punctuality so necessary for workers. If you would be rid of patriarchy, get rid of the nuclear family whose unpaid "shadow work," as Ivan Illich says, makes possible the work-system that makes *it* necessary. Bound up with this no-nukes strategy is the abolition of childhood and the closing of the schools. There are more full-time students than full-time workers in this country. We need children as teachers, not students. They have a lot to contribute to the ludic revolution because they're better at playing than grown-ups are. Adults and children are not identical but they will become equal through interdependence. Only play can bridge the generation gap.

I haven't as yet even mentioned the possibility of cutting way down on the little work that remains by automating and cybernizing it. All the scientists and engineers and technicians freed from bothering with war research and planned obsolescence would have a good time devising means to eliminate fatigue and tedium and danger from activities like mining. Undoubtedly they'll find other projects to amuse themselves with. Perhaps they'll set up world-wide all-inclusive multi-media communications systems or found space colonies. Perhaps. I myself am no gadget freak. I wouldn't care to live in a pushbutton paradise. I don't what robot slaves to do everything; I want to do things myself. There is, I think, a place for labor-saving technology, but a modest place. The historical and pre-historical record is not encouraging. When productive technology went from hunting-gathering to agriculture and on to industry, work increased while skills and self-determination diminished. The further evolution of industrialism has accentuated what Harry Braverman called the degradation of work. Intelligent observers have always been aware of this. John Stuart Mill wrote that all the labor-saving inventions ever devised haven't saved a moment's labor. Karl Marx wrote that "it would be possible to write a history of the inventions, made since 1830, for the sole purpose of supplying capital with weapons against the revolts of the working class." The enthusiastic technophiles -- Saint-Simon, Comte, Lenin, B. F. Skinner -- have always been unabashed authoritarians also; which is to say, technocrats. We should be more than sceptical about the promises of the computer mystics. *They* work like dogs; chances are, if they have their way, so will the rest of us. But if they have any particularized contributions more readily subordinated to human purposes than the run of high tech, let's give them a hearing.

What I really want to see is work turned into play. A first step is to discard the notions of a "job" and an "occupation." Even activities that already have some ludic content lose most of it by being reduced to jobs which certain people, and only those people are forced to do to the exclusion of all else. Is it not odd that farm workers toil painfully in the fields while their air-conditioned masters go home every weekend and putter about in their gardens? Under a system of permanent revelry,

we will witness the Golden Age of the dilettante which will put the Renaissance to shame. There won't be any more jobs, just things to do and people to do them.

The secret of turning work into play, as Charles Fourier demonstrated, is to arrange useful activities to take advantage of whatever it is that various people at various times in fact enjoy doing. To make it possible for some people to do the things they could enjoy it will be enough just to eradicate the irrationalities and distortions which afflict these activities when they are reduced to work. I, for instance, would enjoy doing some (not too much) teaching, but I don't want coerced students and I don't care to suck up to pathetic pedants for tenure.

Second, there are some things that people like to do from time to time, but not for too long, and certainly not all the time. You might enjoy baby-sitting for a few hours in order to share the company of kids, but not as much as their parents do. The parents meanwhile, profoundly appreciate the time to themselves that you free up for them, although they'd get fretful if parted from their progeny for too long. These differences among individuals are what make a life of free play possible. The same principle applies to many other areas of activity, especially the primal ones. Thus many people enjoy cooking when they can practice it seriously at their leisure, but not when they're just fueling up human bodies for work.

Third -- other things being equal -- some things that are unsatisfying if done by yourself or in unpleasant surroundings or at the orders of an overlord are enjoyable, at least for a while, if these circumstances are changed. This is probably true, to some extent, of all work. People deploy their otherwise wasted ingenuity to make a game of the least inviting drudge-jobs as best they can. Activities that appeal to some people don't always appeal to all others, but everyone at least potentially has a variety of interests and an interest in variety. As the saying goes, "anything once." Fourier was the master at speculating how aberrant and perverse penchants could be put to use in post-civilized society, what he called Harmony. He thought the Emperor Nero would have turned out all right if as a child he could have indulged his taste for bloodshed by working in a slaughterhouse. Small children who notoriously relish wallowing in filth could be organized in "Little Hordes" to clean toilets and empty the garbage, with medals awarded to the outstanding. I am not arguing for these precise examples but for the underlying principle, which I think makes perfect sense as one dimension of an overall revolutionary transformation. Bear in mind that we don't have to take today's work just as we find it and match it up with the proper people, some of whom would have to be perverse indeed. If technology has a role in all this it is less to automate work out of existence than to open up new realms for re/creation. To some extent we may want to return to handicrafts, which William Morris considered a probable and desirable upshot of communist revolution. Art would be taken back from the snobs and collectors, abolished as a specialized department catering to an elite audience, and its qualities of beauty and creation restored to integral life from which they were stolen by work. It's a sobering thought that the grecian urns we write odes about and showcase in museums were used in their own time to store olive oil. I doubt our everyday artifacts will fare as well in the future, if there is one. The point is that there's no such thing as progress in the world of work; if anything it's just the opposite. We shouldn't hesitate to pilfer the past for what it has to offer, the ancients lose nothing yet we are enriched.

The reinvention of daily life means marching off the edge of our maps. There is, it is true, more suggestive speculation than most people suspect. Besides Fourier and Morris -- and even a hint, here and there, in Marx -- there are the writings of Kropotkin, the syndicalists Pataud and Pouget, anarcho-communists old (Berkman) and new (Bookchin). The Goodman brothers' *Communitas* is exemplary for illustrating what forms follow from given functions (purposes), and there is something to be gleaned from the often hazy heralds of alternative/appropriate/intermediate/convivial technology, like Schumacher and especially Illich, once you disconnect their fog machines. The situationists -- as represented by Vaneigem's *Revolution* *of* *Daily* *Life* and in the *Situationist* *International* *Anthology* -- are so ruthlessly lucid as to be exhilarating, even if they never did quite square the endorsement of the rule of the worker's councils with the abolition of work. Better their incongruity, though than any extant version of leftism, whose devotees look to be the last champions of work, for if there were no work there would be no workers, and without workers, who would the left have to organize?

So the abolitionists would be largely on their own. No one can say what would result from unleashing the creative power stultified by work. Anything can happen. The tiresome debater's problem of freedom vs. necessity, with its theological overtones, resolves itself practically once the production of use-values is coextensive with the consumption of delightful play-activity.

Life will become a game, or rather many games, but not -- as it is now - -- a zero/sum game. An optimal sexual encounter is the paradigm of productive play, The participants potentiate each other's pleasures, nobody keeps score, and everybody wins. The more you give, the more you get. In the ludic life, the best of sex will diffuse into the better part of daily life. Generalized play leads to the libidinization of life. Sex, in turn, can become less urgent and desperate, more playful. If we play our cards right, we can all get more out of life than we put into it; but only if we play for keeps.

No one should ever work. Workers of the world... *relax*!

Modern Science and Anarchism - Pëtr Kropotkin

I. The Origins of Anarchy

Anarchy does not draw its origin from any scientific researches, or from any system of philosophy. Sociological sciences are still far from having acquired the same degree of accuracy as physics or chemistry. Even in the study of climate and weather [Meteorology], we are not yet able to predict a month or even a week beforehand what weather we are going to have; it would be foolish to pretend that in the social sciences, which deal with infinitely more complicated things than wind and rain, we could scientifically predict events. We must not forget either that scholars are but ordinary men and that the majority belong to the wealthy, and consequently share the prejudices of this class; many are even directly in the pay of the State. It is, therefore, quite evident that Anarchy does not come from universities.

Like Socialism in general, and like all other social movements, Anarchy was born amongst the people, and it will maintain its vitality and creative force only as long as it remains a movement of the people.

Historically, two currents have been in conflict in human society. On the one hand, the masses, the people, developed in the form of customs a multitude of institutions necessary to make social existence possible: to maintain peace, to settle quarrels, and to practise mutual aid in all circumstances that required combined effort. Tribal customs amongst savages, later the village communities, and, still later, the industrial guilds and the cities of the Middle Ages, which laid the first foundations of international law, all these institutions were developed, not by legislators, but by the creative spirit of the masses.

On the other hand, there have been magi, shamans, wizards, rain-makers, oracles, priests. These were the first teachers of a [rudimentary] knowledge of nature and the first founders of religions ([worshiping] the sun, the forces of Nature, ancestors, etc.) and the different rituals that were used to maintain the unity of tribal federations.

At that time, the first germs of the study of nature (astronomy, weather prediction, the study of illnesses) went hand in hand with various superstitions, expressed by different rites and cults. The beginnings of all arts and crafts also had this origin in study and superstition and each had its mystical formulae that were provided only to the initiated, and were carefully concealed from the masses.

Alongside of these earliest representatives of science and religion, there were also men, like the bards, the brehons of Ireland, the speakers of the law of the Scandinavian peoples, etc. who were considered masters in the ways of customs and of the ancient traditions, which were to be used in the event of discord and disagreements. They kept the law in their memory (sometimes through the use of symbols, which were the germs of writing) and in case of disagreements they acted as referees.

Finally, there were also the temporary chiefs of military bands, who were supposed to possess the secret magic for success in warfare; they also possessed the secrets of poisoning weapons and other military secrets.

These three groups of men have always formed amongst themselves secret societies to keep and pass on (after a long and painful initiation period) the secrets of their social functions or their crafts; and if, at times, they fought each other, they always agreed in the long run; they joined together and supported each other in order to dominate the masses, to reduce them to obedience, to govern them—and to make the masses work for them.

It is evident that Anarchy represents the first of these two currents, that is to say, the creative, constructive force of the masses, who developed institutions of common law to defend themselves against the domineering minority. It is also by the creative and constructive force of the people, aided by the whole strength of science and modern technology, that Anarchy now strives to set up the necessary institutions to guarantee the free development of society—in contrast to those who put their hope in laws made by ruling minorities and imposed on the masses by a rigorous discipline.

We can therefore say that in this sense there have always been anarchists and statists.

Moreover, we always find that [social] institutions, even the best of them—those that were originally built to maintain equality, peace and mutual aid—became petrified as they grew old. They lost their original purpose, they fell under the domination of an ambitious minority, and they end up becoming an obstacle to the further development of society. Then individuals, more or less isolated, rebel. But while some of these discontented, by rebelling against an institution that has become irksome, sought to modify it in the interests of all—and above all to overthrow the authority, foreign to the social institution (the tribe, the village commune, the guild, etc.)—others only sought to set themselves outside and above these institutions in order to dominate the other members of society and to grow rich at their expense.

All political, religious, economic reformers have belonged to the first of the two categories; and amongst them there have always been individuals who, without waiting for all their fellow citizens or even only a minority of them to be imbued with similar ideas, strove forward and rose against oppression—either in more or less numerous groups or alone if they had no following. We see revolutionaries in all periods of history.

However, these revolutionaries also had two different aspects. Some, while rebelling against the authority that had grown up within society, did not seek to destroy this authority but strove to seize it for themselves. Instead of an oppressive power, they sought to constitute a new one, which they would hold, and they promised—often in good faith—that the new authority would have the welfare of the people at heart, it would be their true representative—a promise that later on was inevitably forgotten or betrayed. Thus were constituted Imperial authority in the Rome of the Caesars, the authority of the [Catholic] Church in the first centuries of our era, dictatorial power in the cities of the Middle Ages during their period of decline, and so forth. The same current was used to establish royal authority in Europe at the end of the feudal period. Faith in an emperor "for the people"—a Caesar—is not dead, even today.

But alongside this authoritarian current, another current asserted itself in times when overhauling the established institutions was necessary. At all times, from ancient Greece to the present day, there were individuals and currents of thought and action that sought not to replace one authority by another but to destroy the authority which had been grafted onto popular institutions—without creating another to take its place. They proclaimed the sovereignty of both the individual and the people, and they sought to free popular institutions from authoritarian overgrowths; they worked to give back complete freedom to the collective spirit of the masses—so that the popular genius might once again freely rebuild institutions of mutual aid and mutual protection, in harmony with new needs and new conditions of existence. In the cites of ancient Greece, and especially in those of the Middle Ages (Florence, Pskov, etc.,) we find many examples of these kinds of conflicts.

We may therefore say that Jacobins and anarchists have always existed amongst reformers and revolutionaries.

Formidable popular movements, stamped with an anarchist character, took place several times in the past. Villages and cities rose against the principle of government—against the organs of the State, its courts, its laws—and they proclaimed the sovereignty of the rights of man. They denied all written law, and asserted that every man should govern himself according to his conscience.

They thus tried to establish a new society, based on the principles of equality, complete freedom, and work. In the Christian movement in Judea, under Augustus—against the Roman law, the Roman State, and the morality, or rather the immorality, of that time—there was unquestionably considerable elements of Anarchy. Little by little this movement degenerated into a Church movement, fashioned after the Hebrew Church and Imperial Rome itself, which naturally killed all that Christianity possessed of anarchism at its outset, gave it Roman forms, and soon it became the principal support of authority, State, slavery, oppression. The first seeds of "opportunism" which were introduced into Christianity are already visible in the Gospels and the Acts of the Apostles—or, at least, in the versions of these writings that make up the New Testament.

Similarly, the Anabaptist movement of the sixteenth century, which inaugurated and brought about the Reformation, also had an anarchist basis. But crushed by those reformers who, under Luther's leadership, leagued with the princes against the rebellious peasants, the movement was suppressed by a great massacre of peasants and the "lower classes" of the towns. Then the right wing of the reformers degenerated little by little, until it became the compromise between its own conscience and the State which exists today under the name of Protestantism.

Therefore, to summarise, Anarchy was born in the same critical and revolutionary protest which gave rise to socialism in general. However, one portion of the socialists, after having reached the negation of capital and of a society based on the enslavement of labour to capital, stopped there. They did not declare themselves against what constitutes the real strength of capital—the State and its principal supports: centralisation of authority, law (always made by the minority, for the profit of minorities), and [a form of] Justice whose chief aim is to protect authority and capital.

As for Anarchy, it does not exclude these institutions from its critique. It raises its sacrilegious arm not only against capital but also these henchmen of capitalism.

II. The Intellectual Movement of the Eighteenth Century

If Anarchy, like all other revolutionary movements, was born amongst the people during the turmoil of struggle and not in a scholar's study, it is important, nevertheless, to know its position amongst the various currents of scientific and philosophical thought that exist at the present time. What is its attitude to these diverse currents? On which of them does it prefer to rely upon? Which method of research does it use to support its conclusions? In other words, to what school of Philosophy of Law does Anarchy belong? With what current of modern science does it show most affinity?

In view of the infatuation for metaphysical economics which we have recently seen in socialist circles, this question provides some interest. I will therefore try to answer it as briefly and simply as possible, avoiding all difficult terms where I can.

The intellectual movement of the nineteenth century originated from the works written by [Scottish] English, and French philosophers in the middle and end of the preceding century.

The awakening of thought which took place in those times stimulated these thinkers with the desire of encompassing allhuman knowledge in a general system—the system of Nature. Completely rejecting the scholasticism and metaphysics of the Middle Ages, they had the courage to conceive

all Nature—the universe of stars, our solar system, our globe, the development of the plants, the animals, and the human societies on its surface—as a series of facts that can be studied in the same way as the natural sciences are.

Mainly taking advantage of the true scientific method—the inductive-deductive method—they undertook the study of all groups of facts presented to us by Nature, whether belonging to the world of stars or of animals, or to that of beliefs or human institutions, just in the same manner as a naturalist would study questions of physics.

They began by patiently recording facts, and when they ventured upon generalisations, they did so using induction. They made some hypotheses; but they attributed no more importance to these hypotheses than Darwin did to his hypothesis concerning the origin of new species by the struggle for existence, or that Mendéléeff gave to his "periodic law." They saw assumptions as providing a preliminary explanation [or working hypotheses] and facilitated the grouping of facts and their study; but they did not forget that these assumptions had to be confirmed by applying them to a multitude of facts and explained in a deductive way. They could become "laws" (proved generalisations) only after they had undergone this verification and the causes of the constant relations they express could be explained.

When the centre of the philosophical movement of the eighteenth century was transferred from England and Scotland to France, the French philosophers, with the feeling for system peculiar to them began to construct on general terms and on the same principles allhuman knowledge: historical and natural. They attempted to construct generalised knowledge—the philosophy of the universe and its life—upon a strictly scientific basis, rejecting all the metaphysical constructions of previous philosophers, and explained all phenomena by the action of those same physical (that is to say, mechanical) forces that sufficed them to explain the origin and the evolution of the terrestrial globe.

It is said that when Napoleon I remarked to Laplace that in his Exposition of the System of the Universe the name of God was nowhere to be found, Laplace answered: "I nowhere felt the need of that hypothesis." But Laplace did better. He did not resort, either, to the grand words of metaphysics behind which generally hides incomprehension nor an obscure semi-understanding of phenomena and the inability to represent these in a concrete form, as measurable quantities. Laplace dispensed with metaphysics as well as with the hypothesis of a creator; and although his Exposition of the System of the Universe contains no mathematical formulas and was written in a style comprehensible to all educated readers, mathematicians could later express each separate thought of that work in mathematical equations—that is to say, as relations between measurable quantities: so exactly had Laplace thought out every detail of his work.

What Laplace did for celestial mechanics, the French philosophers of the eighteenth century had tried to do, within the limits of the knowledge of the time, for the study of the phenomena of life as well as for those of human understanding and feeling (psychology). They abandoned the metaphysical assertions found in their predecessors and which is encountered later in the German philosopher Kant.

It is known, indeed, that Kant sought to explain, for instance, the moral sentiment of man by saying that it is "a categorical imperative," and that such a maxim of conduct is obligatory "if we conceive it as a law susceptible of universal application." But every word in this definition substitutes something nebulous and incomprehensible ("imperative" and "categorical," "law," "universal"!) in the place of the material facts, known to us all, that he was meant to explain.

The French Encyclopaedists could not be satisfied with such "explanations" by "grand words." Like their English and Scottish predecessors, they could not—to explain whence man obtained his conception of good and evil—insert, as Goethe said, "a word where there is a lack of ideas." They studied this conception in man—as [Francis] Hutcheson had already done in 1725, and, later, Adam Smith in his best work, The Theory of Moral Sentiments—and they found that the moral sentiment of man derives its origin from the feeling of pity and of sympathy which we feel towards those who suffer. It comes from the capacity with which we are endowed of identifying ourselves with others—so that we almost feel physical pain when we see a child beaten in our presence, and this act revolts us.

Starting from this type of observation, and facts known to everyone, the Encyclopaedists arrived at wider generalisations. By this method they really explained moral sentiment, which is a complex fact, by simpler facts. But they never put, instead of known and comprehensible facts, incomprehensible and nebulous words, that explain absolutely nothing—like "categorical imperative" or "universal law."

The advantage of the method of the Encyclopaedists is obvious. Instead of "inspiration from on high," instead of an extra-human and supernatural origin for the moral sentiment, they said to man: "Here is the feeling of pity and sympathy, possessed by man since his origin, drawn from his very first observations of his fellow creatures, and perfected little by little by the experience of life in societies. From this feeling comes our moral sense."

We thus see that the thinkers of the eighteenth century did not change their method when they passed from the realm of stars to the realm of chemical reactions, or from the physical and chemical world to the life of plants and animals, or to the development of the economic and political forms of [human] society, the evolution of religions, and so on. The method remained the same. To all branches of science they applied the inductive method. And neither in the study of religions, nor in the analysis of the moral sense, nor in thought in general, did they find a single case where their method failed and where another method was necessary. Nowhere did they find themselves compelled to resort to metaphysical conceptions (God, immortal soul, life force, categorical imperative inspired by a superior being, etc.), or to some dialectic method—they attempted to explain the entire universe and all phenomena in the same NATURALIST way.

During those years of remarkable intellectual development, the Encyclopaedists built their monumental Encyclopaedia. Laplace published his System of the Universe, and Holbach his System of Nature. Lavoisier affirmed the indestructibility of matter and, consequently, of energy and movement. Lomonosov in Russia, inspired by Bayle, already at that time sketched his mechanical theory of heat; Lamarck explained the origin of the infinitely varied species of plants and animals by adaptation to their diverse surrounding environments; Diderot gave an explanation

of moral sentiment, moral customs, primitive institutions and religions, without resorting to inspiration from on high; Rousseau endeavoured to explain the birth of political institutions as a consequence of a social contract—that is to say, by an act of human will. In short, there was not a single area which they did not study by means of facts, by the same scientific method of induction and deduction, verified by observation of facts and experiment.

Of course, more than one error was committed in that great and bold attempt. Where knowledge was lacking, sometimes hasty and erroneous assumptions were made. But a new method had been applied to the whole of human knowledge and thanks to this new method, the errors themselves were easily recognised and corrected later on. By this means the nineteenth century inherited a powerful instrument of research which enabled us to build our whole conception of the universe on a scientific basis, and to finally free it from the prejudices that obscured it, as well as those nebulous words which say nothing and which we formerly had the bad habit of introducing when we wished to avoid difficult questions.

III. The Reaction at the Beginning of the Nineteenth Century

After the defeat of the Great French Revolution, Europe passed, as is known, through a period of general reaction: in the domains of politics, science and philosophy. The White Terror of the Bourbons [in France], the Holy Alliance concluded in 1815 between the monarchs of Austria, Germany, and Russia to combat liberal ideas, the mysticism and "pietism" in European High Society, and the State police everywhere, triumphed all down the line.

Yet the fundamental principles of the Revolution did not perish. The emancipation of the peasants and the town workers from the state of semi-serfdom which they had endured until then, equality before the law, and representative government—these three principles promulgated by the Revolution and carried by the [French] revolutionary armies all over Europe, as far as Poland, made their way in France as elsewhere. After the Revolution, which had announced [to the world] the great principles of liberty, equality and fraternity, began the slow evolution—that is to say, the slow transformation of institutions: the application to everyday life of the general principles proclaimed in France during 1789–1793. We note in passing that realisation by way of evolution of the principles announced during the preceding revolutionary upheaval could be recognised as a general law of the development of societies.

If the Church, the State, and even Science trampled under their feet the banner on which the Revolution had inscribed its motto: "Liberty, Equality, Fraternity"; if accommodation with what exists had then become the watchword, even in philosophy, the great principles of freedom nevertheless began to penetrate into life. True, the servile obligations of the peasants, as well as the Inquisition, that had been abolished in Italy and Spain by the armies of the Revolution, were re-established. But a death-blow had been dealt to these institutions: they will never recover.

The wave of liberation first reached western Germany; then it rolled as far as Prussia and Austria; it spread over the Iberian and Italian peninsulas; and, flowing eastwards, it arrived in Russia in 1861 and in the Balkans in 1878. Slavery disappeared in [North] America in 1863. At the same time, the idea of equality of all before the law and that of representative government also spread

from west to east, and by the end of the century only Russia and Turkey remained under the yoke of autocracy—both, it is true, on their death-beds.

There was more. On the dividing line between the eighteenth and nineteenth centuries, we already find the ideas of economic emancipation loudly advocated. Immediately after the overthrow of the monarchy by the people of Paris on August 10, 1792, and especially after the overthrow of the Girondins on June 2, 1793, there was in Paris and the provinces an outburst of communist feelings; and then we saw the revolutionary "sections" of the large cities and the municipalities of many small towns proceed in this direction in a large part of France.

Intelligent men of the people declared that Equality must cease to be an empty word: it must become a fact. And as the burden of the war that the Republic had to fight against "conspiring Kings" fell especially upon the poor, the people forced the Commissaries of the Convention to take some communist, egalitarian measures.

The Convention itself was forced [by the people] to take steps in the communist direction, and it took some measures tending towards "the abolition of poverty" and "levelling the fortunes." After the Girondists had been thrown out of the Government by the uprising of 31 May—2 June 1793, the Convention was even forced to take actions that tended to nationalise not only the land, but also all the commerce of the nation [le commerce national], at least for essential items.

This very profound movement lasted until July 1794, when the bourgeois reaction of the Girondists, combining with the Monarchists, gained the upper hand on the 9 Thermidor. But, despite its short duration, it gave to the nineteenth century its specific character: the communist and socialist tendency of its advanced elements.

So long as the movement of 1793–1794 lasted, it found its voice in popular speakers. But amongst the writers of the period there were none in France who could give a reasoned literary expression to these aspirations (which were called "Beyond Marat") in order to produce a lasting effect upon minds.

It was in England that William Godwin brought out in 1793 a truly remarkable work: Enquiry Concerning Political Justice and its Influence on Morals and Happiness. This work made him the first theoriser of socialism without government, that is to say, of anarchy; elsewhere Babeuf (under the influence, it would seem, of Buonarotti) emerged, in 1795, as the first theoriser of centralised socialism, of State socialism.

Later—developing the principles already put forth at the end of the previous century—came Fourier, Saint-Simon and Robert Owen—the three founders of modern socialism in its three principal schools; and later on, in the forties, we have Proudhon, who, without knowing Godwin's work, laid anew the foundations of anarchy.

The scientific basis of socialism in both its aspects, governmental and non-governmental, was thus elaborated from the beginning of the nineteenth century, with a wealth of development unknown, unfortunately, by our contemporaries. Modern socialism, which dates from the International [Workers' Association] has surpassed these founders on two points—undoubtedly very

important—but on these two points alone. It has become revolutionary and it has broken with the notion of the "socialist and revolutionary Christ" which they loved to parade before 1848.

Modern socialism understood that to realise its aspirations social revolution is absolutely necessary—not in the sense in which we sometimes use the word "revolution" when speaking of the "industrial revolution" or a "revolution in science" but in its true, concrete sense: the general and swift reconstruction of the very foundations of society. Furthermore, modern socialism has ceased to mix its ideas with certain very trivial reforms of a sentimental order talked about by some Christian reformers. But this [last]—it must be highlighted—had already been done by Godwin, Fourier, and Robert Owen. As for officialdom, centralisation and the cult of authority and discipline—which humanity chiefly owes to theocracy and to imperial Roman law, the relics of a dark past as characterised very well by P. Lavrov—these are still fully retained by a host of modern socialists who, consequently, have not yet reached the level of their English and French predecessors.

It would be difficult to give here an adequate idea of the influence which reaction, having become supreme after the Great [French] Revolution, exercised upon the development of science. It suffices to note [here] that what modern science is so proud of today was already indicated and often more than indicated—it was sometimes expressed in a definite scientific form—towards the end of the eighteenth century. The mechanical theory of heat; the indestructibility of movement (conservation of energy); the variability of species under the direct influence of surroundings; physiological psychology; the anthropological understanding of history, religions and legislation; the laws of development of thought—in short, the whole mechanical conception of nature as well as the synthetic philosophy (a philosophy that includes all physical, chemical, living and social phenomena as a single whole) were already sketched and partly elaborated in the eighteenth century.

But when the reaction had got the upper hand after the end of the Great [French] Revolution, they sought for fully half a century to suppress these discoveries. Reactionary scholars represented them as "unscientific." On the pretext of first studying "the facts" and amassing "the materials of science," scientific societies rejected any research which were not merely measurements—such as the elder Séguin's and, later on, Joule's determination of the mechanical equivalent of heat (the quantity of mechanical friction necessary to obtain a certain quantity of heat)—as soon as the scholars glimpsed some new principle! The Royal Society in England, which is the English Academy of Sciences, even refused to print Joule's work on this subject, finding it "unscientific." And as for Grove's remarkable work on the unity of all physical forces—written in 1843—no attention was paid to it until 1856.

It is only by studying the history of science in the first half of the nineteenth century that we realise how deep was the darkness that enveloped Europe at that time.

The veil was suddenly rent in the late fifties, when people in the west experienced the beginning of the liberal movement that led to the uprising of Garibaldi, the liberation of Italy, the abolition of slavery in [the United States of] America, liberal reforms in England, etc. This same movement produced in Russia the abolition of serfdom and the knout, in philosophy it overturned the authority

of Schelling and Hegel, and gave birth to the open rebellion against intellectual serfdom and abasement before any kind of authority which is known by the name of nihilism.

Now that we can trace the intellectual history of those years, it is obvious to us that it was the propaganda of republican and socialist ideas in the thirties and forties, and the Revolution of 1848, which helped science to rend the chains that restrained it.

Indeed, without going into details, it will be sufficient to note that Séguin (whose name has already been mentioned), Augustin Thierry (the historian who first laid the foundations of the study of the popular regime within the communes and the federalist ideas of the Middle Ages), Sismondi (the historian of the free cities in [Medieval] Italy) were students of Saint-Simon, one of the three founders of Socialism in the first half of the nineteenth century; Alfred R. Wallace, who discovered at the same time as Darwin the theory of origin of species through natural selection, was in his youth a convinced follower of Robert Owen; Auguste Comte was a Saint-Simonist; Ricardo, as well as Bentham, were [influenced by] Owenites; and the materialists Carl Vogt and G. Lewes, as well as Grove, Mill, Herbert Spencer, and many others, experienced the influence of the English radical socialist movement of the thirties and forties. From this movement they drew their scientific courage.

The appearance, in the short span of five or six years, 1856–1862, of the works of Grove, Joule, Berthelot, Helmholtz, Mendéléeff; of Darwin, Claude Bernard, Spencer, Vogt and Moleschott; of Lyell on the origin of man; of Bain, Mill, and Burnouf—the sudden appearance of this work produced a complete revolution in the fundamental conceptions of scientists. Science was thus launched into new paths. Whole branches of knowledge were created with prodigious rapidity.

The science of life (biology), that of human institutions (anthropology and ethnology), that of understanding, will and passions (physical psychology), the history of law and of religions and so on were formed before our eyes, striking the mind by the boldness of their generalisations and the revolutionary character of their conclusions. What were in the previous century vague assumptions, often even intuitions, now presented themselves as proved by the scales and the microscope, verified by thousands of applications. Even the manner of writing completely changed and all the scientists that we have just mentioned returned to the simplicity, the exactness, and the beauty of style characteristic of the inductive method, and which those writers of the eighteenth century who had broken with metaphysics possessed so well.

It is definitely impossible to predict in which direction science will henceforth go. As long as scientists depend on the rich and governments, their science will inevitably bear that mark, and a stagnant period, like the one in the first half of the nineteenth century, can certainly be produced once more. But one thing is certain. In science, as it appears today, there is no need for the hypothesis which Laplace knew how to dispense with, nor the metaphysical “little words” which Goethe mocked. We can already read the book of Nature, which includes the development of organic life and of humanity, without resorting to a creator, a mystic “vital force,” or an immortal soul, and without consulting the trilogy of Hegel, or hiding our ignorance behind any metaphysical symbols which we ourselves have endowed with real existence. Mechanical phenomena—becoming more and more complicated as we pass from physics to the facts of life, but always

remaining mechanical—are sufficient to explain the whole of Nature and the organic, intellectual and social life we discover.

Without doubt much remains unknown, obscure and misunderstood by us in the universe; without doubt, we will always open new gaps in our knowledge as the old ones are filled. But we know no area in which it would be impossible to find an explanation of phenomena if we apply simple physical facts—[like] those that occur when two billiard balls meet, or when a stone falls; or the chemical facts that we see around us. These mechanical facts have been sufficient so far to explain the whole of Nature. Nowhere have they failed us: and we do not see the possibility of ever discovering an area in which mechanical facts would no longer suffice us. Nothing, thus far, makes us suspect its existence.

IV. Comte's Positive Philosophy

It is obvious that as soon as science began to attain such results, it was necessary to attempt the construction of a synthetic philosophy which would incorporate all these findings. Without wasting any more time on these products of their own imagination such as "substances," "the idea of the universe," or "the destination of life" and other symbolic expressions which philosophers used to entertain our fathers and grandfathers; and without appealing to anthropomorphism—that is, endowing human qualities and intentions to Nature and to physical forces—it was natural to seek to construct a philosophy that was a systematic, unified and structured summary of all our knowledge. Such a philosophy, gradually rising from the simple to the complex, would set out the fundamental principles of the life of the universe, and give us a key to comprehending the whole of nature. It would provide us, as a consequence, with a powerful instrument of research, which would help us to discover new relationships between various phenomena—that is to say, new natural laws—and inspire us at the same time with confidence in the accuracy of our conclusions, if they are contrary to the established current notions.

Several such attempts were made, in fact, during the nineteenth century, with those of August Comte and Herbert Spencer especially deserving our attention.

It is true that the necessity for a synthetic philosophy was already understood in the eighteenth century, by the Encyclopaedists, by Voltaire in his admirable Philosophical Dictionary, which still remains a monumental work, by Turgot, and, later, even more clearly by Saint-Simon. Then, in the first half of the nineteenth century, Auguste Comte undertook the same work, in a more scientific way, in response to recent advances in the natural sciences.

As regards mathematics and exact sciences in general, Comte fulfilled his task in a most admirable way. It is also generally recognised that he was perfectly right to introduce the science of life (biology) and [the science] of human societies (sociology) in the course [cycle] of positive sciences. And it is also known what a formidable influence Comte's positive philosophy exerted on most thinkers and scientists in the second half of the nineteenth century.

But why—asked the admirers of the great philosopher—why was Comte so weak when he undertook in his Positive Politics, the study of modern institutions and especially that of ethics, the science of moral concepts?

How could a vast and positive mind as his end up becoming the founder of a religion and a cult, as Comte did in his declining days?

Many of his students have tried to reconcile this religion and cult with his previous work and maintain against all evidence that the philosopher had followed the same method in both his works—his Positive Philosophy and Positive Politics. But two positive philosophers as important as J. S. Mill and Littré agree in not recognising the Positive Politics as part of Comte's philosophy. They see in it only the product of an already weakened intelligence.

Yet the contradiction between these two works of Comte—his Philosophy and his Politics—is extremely characteristic as it sheds light upon the most serious questions of our time.

When Comte had finished his Course of Positive Philosophy [in 1842] he had certainly to notice that his philosophy had not yet dealt with the essential question: the origin of the moral sentiment in man and the influence of that feeling on the life of man and his societies. Obviously, he had to indicate the origin of this feeling, to explain this influence by the same causes by which he had explained life in general; and he had to show why man feels the need to obey this feeling, or at least reckon with it.

It is most striking that Comte was on the right path—which was followed later by Darwin, when the great English naturalist tried to explain, in the Descent of Man, the origin of the moral sense. Comte wrote, indeed, in his Positive Politics, several admirable passages which show that sociability and mutual aid among animals and the ethical importance of this fact had not escaped his attention.

But to draw out of these facts the necessary, positivistconclusions, biological knowledge was still insufficient at that time, and he himself lacked boldness. He removed God—the divinity of positive religions, which man must worship and pray to in order to remain moral—and in its stead he put Humanity with a capital letter. He ordered us to prostrate ourselves before and address our prayers to this new idol in order to develop in ourselves the moral element.

But once this was done, once it was recognised as necessary for man to worship some entity placed outside and above the individual, in order to keep the human animal on the path of duty—the rest followed of itself. The ritual of Comte's religion was naturally found in the rituals of ancient religions of the East.

In fact, Comte was inevitably bound to come to such a conclusion, as soon as he had not recognised that the moral sense of man, like sociability and society itself, was of pre-human origin: as soon as he did not recognise in it a further development of the sociability that can be seen in animals, fortified in man by his observation of nature and the life of human societies.

Comte had not understood that the moral sense of man is as much dependent upon his nature as his physical organisation is; that both are an inheritance derived from an extremely long development—of an evolution which lasted tens of thousands of years. Comte had noticed the feelings of sociability and mutual sympathy that exist amongst the animals; but, under the influence of the great zoologist Cuvier who was considered at the time as a supreme authority, he had not admitted what Buffon and Lamarck had already highlighted—the variability of species.

He had not recognised the uninterrupted evolution from animal to man. Consequently, he could not see what Darwin understood: that the moral sense of man is nothing else but a further development of the instincts, habits of mutual aid that existed in all animal societies long before the first man-like creatures appeared on earth.

As a consequence, Comte could not realise, as we see today, that whatever the immoral acts of isolated individuals, the moral principle will necessarily live in humanity, in the form of instinct, as long as the human species does not enter a period of decline; that acts contrary to the morals derived from this source must necessarily produce a reaction from other men, just as a mechanical action produces a reaction in the physical world. And he did not realise that in this capacity to react against the anti-social acts of a few lies the natural force which inevitably maintains the moral sense and the sociable habits in human societies, as it maintains them in animal societies, without any intervention from outside; that this force is infinitely more powerful than the orders of any religion or any law-makers. But once Comte had not recognised this, he was bound to invent a new divinity—Humanity—and a new cult, so that this cult would always bring man back to the path of moral life.

Like Saint-Simon, like Fourier, he thus paid a tribute to his Christian education. Without admitting a struggle between the principle of Good and the principle of Evil (both evenly matched), and without man turning to the representative of the first principle to strengthen himself in the struggle against the representative of Evil—without this, Christianity cannot exist. And Comte, imbued with this Christian idea, returned to it as soon as he had to deal with the question of morality and the means of strengthening it in our feelings. The cult of Humanity was to be his instrument to keep man from the nefarious power of Evil.

V. The Awakening in the Years 1856–1862

If Auguste Comte had failed in his study of human institutions, and above all in his study of the moral principle we must not forget that he wrote his Positive Philosophy and [Positive] Politics long before the years 1856–1862, which—as we have mentioned—suddenly widened the horizon of science and rapidly raised the level of the general understanding of every educated man.

The works on various branches of science which appeared in the course of those five or six years accomplished so complete a revolution in all our insights on nature, life in general and the life of human societies that you cannot find a similar revolution in the whole history of science for more than twenty centuries.

What the Encyclopaedists had only glimpsed, or rather foreseen, what the best minds of the nineteenth century had up until then found so difficult to disentangle, suddenly appeared with the full force of knowledge. Everything so completely and so well developed by the [application of] the inductive-deductive method of the natural sciences that every other method of research appeared incomplete, false, and pointless.

So let us stop for a moment on these results, the better to be able to appreciate the next attempt at a synthetic philosophy which was made by Herbert Spencer.

In the course of those six years, Grove, Clausius, Helmholtz, Joule and a whole phalanx of physicists and astronomers—including Kirchhoff, who, by his discovery of spectral chemical analysis, enabled us to identify the chemical composition of the stars, that is to say the suns most distant from us—broke the restrictions that had for half-a-century not allowed scientists to embark on far-reaching and bold material generalisations. And in a few years they proved and established the unity of nature throughout the inorganic world. It now became absolutely impossible to speak about mysterious "fluids"—caloric, electric, magnetic, or any other—which physicists had previously resorted to explain different physical forces. It was proved the mechanical movements of molecules—those which produce the waves of the sea, those that we find in the vibrations of a bell, or a metal blade—are sufficient to explain all physical phenomena: heat, light, sound, electricity, magnetism.

More than that. We learned to measure these invisible movements, these vibrations of molecules—to weigh, so to speak, their energy—in the same way we measure the energy of a falling stone, or a moving train. Physics thus became a branch of mechanics.

It was demonstrated, moreover, always during those years, that the celestial bodies most distant from us—even in the myriad suns which are visible in unfathomable quantity in the Milky Way—are composed of the very same simple chemical bodies, or elements, that we know on our Earth, that the very same vibrations of molecules occur there, with the same physical and chemical results, as on our planet. The very movements of the massive celestial bodies, the stars, which travel through space according to the laws of universal gravitation are only, in all probability, the resultant of all these vibrations that are transmitted for billions and trillions of myriametres through the interstellar space of the universe.

These same caloric and electric vibrations suffice to explain all chemical phenomena. Chemistry is yet another chapter of molecular mechanics. And even plant and animal life in its myriad manifestations is only an exchange of molecules (or rather of atoms) in that vast series of chemical bodies, very complicated and consequently very unstable, which compose the living tissues of every animated being. Life is only a series of chemical decompositions and recompositions in very complex molecules: a series of "fermentations" due to chemical, inorganic ferments.

Moreover, at the same time it was grasped (to be better appreciated and proved in the years 1890–1900) how the life of cells in the nervous system and their capacity to transmit every irritation to each other gave us a mechanical explanation for the transmission of irritations in plants as well as the mental life of animals. Following this research we can now, without leaving the domain of purely physiological observations, understand how images and impressions in general are engraved in our brain, how they act upon one another, and how they give rise to conceptions and ideas.

Today we are also able to comprehend "the association of ideas"—that is to say, how each new impression revives the impressions produced before. We grasp, accordingly, the mechanism even of thought.

Certainly, we are still extremely far from discovering everythingin this direction; we are still at the first steps and an immensity remains for us to discover. Science, barely freed from the metaphysics

which strangled it, is only entering the study of this immense domain—physical psychology. But a beginning has been made. A solid foundation has already been laid for further research. The old division into two absolutely separate domains which the German philosopher Kant tried to establish—the domain of phenomena which we explore "in time and space" (the physical realm), and the other, which could only be explored "in time" (the realm of mental phenomena)—this division disappears now. And as for the question that was asked one day by the Russian materialist Professor Sechenov: "What is psychology related to and how to study it?" the answer is already given: "To physiology, by the physiological method!" Indeed, recent research by physiologists has already thrown infinitely more light on the mechanism of thought, on the origin of impressions, their fixing in the memory and their transmission, than all the subtle discussions with which metaphysicians had entertained us hitherto.

So even in this stronghold which belonged to it without possible dispute, metaphysics is now vanquished. The domain of psychology is invaded by the natural sciences and by materialist philosophy, which has advanced our knowledge of the mechanism of thought in this branch [of science] with a previously unknown speed.

However, amongst the works that appeared during these five or six years, there was one which would overshadow all others. This was The Origin of Species, by Charles Darwin.

Buffon in the previous century, and Lamarck at the turn of the nineteenth, had already resolved to affirm that the different species of plants and animals we encounter on Earth do not represent immutable forms. They are variable and they vary continually under the influence of their surroundings. Does not the same family resemblance which is recognised amongst various species belonging to this or that group not prove, they asked, that these species descend from common ancestors? Thus, the various species of buttercup which we find in our meadows and our marshes must be the descendants of one and the same species of ancestor—descendants that diversified as a result of a series of changes and adaptations they have experienced in their varied circumstances of existence. Similarly, the current species of wolf, dog, jackal, fox, did not formerly exist; but in their stead there was a species of animals which in the course of ages gave birth to the wolves, the dogs, the jackals and the foxes. For the horse, donkey, zebra, etc. we already know perfectly well what the common ancestor is: we have found the bones in the [appropriate] geological strata.

But in the eighteenth century, you could not profess such heresies. For far less than that the tribunal of the Church had already threatened to prosecute Buffon, and he was forced to publish his recantation in his Natural History. The Church, at that time, was still very powerful, and the naturalist who dared to hold heresies disagreeable to the bishops was threatened with prison, torture, or the madhouse. That is why the "heretics" spoke with such prudence.

But now, after 1848, Darwin and Wallace dared to affirm the same heresy, and Darwin even had the courage to add that man also developed through a slow physiological evolution; that he derived his origin from a species of ape-like animals; that the "immortal spirit" and the "moral soul" of man had developed in the same way as the mind and social customs of a chimpanzee or an ant.

We know what thunderbolts were hurled by the Elders [of the Churches] at Darwin and especially at his courageous, learned and intelligent apostle Huxley, because he stressed those conclusions of Darwinism which most frightened the priests of all religions.

The struggle was terrible, but the Darwinists emerged victorious. And since then a new science—biology, the science of life in all its manifestations—has grown up before our eyes.

The work of Darwin provided at the same time a new method of investigation for understanding any kind of phenomena—in the life of physical matter, in that of organisms, and in that of societies. The idea of a continuous development, that is to say of Evolution, and a gradual adaptation of beings and societies to new conditions, as those change—this idea found a far wider application than explaining the origin of new species. When it was applied to the study of nature in general, as well as to the study of man, his abilities and his social institutions, it opened up new horizons and presented the opportunity to explain the most incomprehensible facts in the domain of all branches of knowledge. Based on this principle, so rich in consequences, it was possible to reconstruct, not only the history of organisms, but also the history of human institutions.

Biology, in the hands of Herbert Spencer, showed us how all the species of plants and animals inhabiting our globe could develop, starting from a few very simple organisms that populated the earth in the beginning; and Haeckel was able to trace the outline of a likely genealogical tree of the different classes of animals, man included. This was already [an] immense [contribution]. But it also became possible to lay the first solid scientific foundations of the history of human morals, customs, beliefs and institutions—which was absolutely lacking in the eighteenth century and to Auguste Comte. This history can now be written without resorting to the metaphysical formulas of Hegel, and without us wasting time with "innate ideas," the "substances" of Kant, or by revelation from above. We can reconstruct it, in short, with no need for those formulas which were the kiss of death to the spirit of research, and behind which, like [the sun] behind the clouds, the same ignorance was always hidden—always the same old superstition, the same blind faith.

Aided by the works of naturalists on the one hand, and, on the other, by the works of Henry Maine and his followers, who applied the same inductive method to the study of primitive institutions and the laws that draw their origin from them, the history of the development of human institutions could during the last fifty years be put on as firm a foundation as the history of the development of any species of plants or animals.

Without doubt, it would be unjust to forget the work already accomplished in the thirties of the nineteenth century by the school of Augustin Thierry in France, and that of Maurer and the "Germanists" in Germany, of which Kostomaroff, Byelaeff and many others were continuators in Russia. The methodology of evolution had certainly been applied previously, since the Encyclopaedists, to the study of customs and institutions, as well as languages. But it became possible to obtain accurate, scientific, results only after scientists learned to treat the accumulated facts of history just as the naturalist considers the gradual development of the organs of a plant or that of a new species.

In their time, metaphysical formulas no doubt had helped to make some approximate generalisations. They roused numbed thought, they shook it by their vague allusions to the unity

of nature and its incessant life. At a time of reaction, as it was in the first decades of the nineteenth century, when the inductive generalisations of the Encyclopaedists and their English and Scottish predecessors were nearly forgotten, especially at a time when it needed moral courage to dare speak of the unity of physical and "spiritual" nature in the face of triumphant mysticism—and that courage was lacking amongst philosophers—the nebulous metaphysics of the Germans upheld at least the taste for generalisations.

But the generalisations of that time—established either by the dialectical method or a semi-conscious induction—were, for that very reason, despairingly vague. The first were fundamentally based on very nave assertions, similar to those made by some Greeks in antiquity, when they asserted that planets must travel through space along circles, because the circle is the most perfect of curves. The naivety of such assertions and the absence of evidence were only concealed by the vagueness of the arguments and [the use of] nebulous words, as well as by an obscure and grotesquely dense style. As for the generalisations born from a semi-conscious induction, they were always based upon an extremely limited amount of observations—like these very broad and unsubstantiated generalisations of Weismann which just recently caused a stir. The induction being unconscious, the value of these hypothetical conclusions can easily be exaggerated and represented as indisputable laws while they were not, at bottom just guesses—hypotheses, embryos of generalisations, which still needed to undergo elementary verification, comparing their results with the observed facts.

Finally, all these generalisations were expressed in a way so abstract and obscure—such as the "thesis, antithesis, and synthesis" of Hegel—that they left the fullest liberty to draw from them the most arbitrary practical conclusions. So that you could deduce (as was done) the revolutionary spirit of Bakunin along with the Dresden Revolution, the revolutionary Jacobinism of Marx, and the "approval of what exists," which led so many authors to make "peace with reality"—that is to say, with autocracy. Even today, it suffices to mention the many economic errors into which [Marxist] socialists have lately fallen, as a consequence of their predilection for the dialectic method and economic metaphysics, which they have resorted to instead of applying themselves to the study of the actual facts of the economic life of nations.

VI. Spencer's Synthetic Philosophy

Once the study of anthropology (that is to say, the study of the physiological evolution of man and the history of his religions and institutions) was conducted in the same way as the study of all other natural sciences, it became possible at last to understand the essential outlines of the history of mankind. And it became possible to separate it forever from the metaphysics which had hampered the study of history, just as the Biblical tradition had once prevented the study of geology.

One might have thought, therefore, that when Herbert Spencer undertook in his turn the development of a "Synthetic Philosophy" in the second half of the nineteenth century, he could have done so without falling into the errors found in Comte's Positive Politics. And yet, while Spencer's synthetic philosophy represented a great step forward (there is no place in this philosophy for religion or religious rite), in its sociological part it still contains errors just as serious as those in the positive politics.

The fact is that when Spencer came to the psychology of societies, he was not able remain faithful to his rigorously scientific method when studying this branch of knowledge and did not dare to accept the consequences to which this method would have brought him. Thus, for example, Spencer recognised that land should never be private property. The owner of the soil, profiting by his right to raise at will the rent charged for the land, has the power to prevent its farmers from extracting all that could be obtained from it through intensive cultivation; or else he may keep the land uncultivated, waiting until the price of his hectare of land goes up by virtue of the work that is done all around it. Such a system—Spencer was quick to recognise—is harmful to society; it is full of dangers. But, whilst noting this evil with regard to the land, he did not venture to make the same arguments with regards other accumulated wealth—not even mines or docks, not to mention factories and mills.

Alternatively, he raised his voice against State interference in the life of society; he even gave to one of his works a title that represents a whole revolutionary programme: The Man versus the State. But little by little, under the pretext of defending the protective function of the State, he reconstructed the entire State—just like there exists today, imposing on it only a few timid limitations.

These contradictions and many others of the same kind can be explained, without doubt, by the fact that Spencer built the sociological part of his philosophy under the influence of the English radical movement, long before he wrote the part on the natural sciences. In fact, he published his [Social] Statics in 1851, that is to say, at a time when the anthropological study of human institutions was still in its infancy. But, be that as it may, the result was that, like Comte, Spencer did not undertake the study of [human] institutions for their own sake, without preconceived ideas borrowed from a domain other than science. Furthermore, when it came to the philosophy of societies [sociology], Spencer began to use a new method, the most treacherous of all—the method of similarities (analogies), which he needless to say had not utilised for the study of physical facts. This method allowed him to justify a whole mass of preconceived ideas. And the result was that we still, to this day, do not have a synthetic philosophy built following the same method in its two aspects: the natural sciences and the sociological sciences.

It must also be said that Spencer was the least suitable man to study the primitive institutions of savages. In this respect he even exaggerated a common failing in most of the English: that of not being able to understand the morals and customs of other nations. “We [English] are men of Roman law, while the Irish are a people of common law; that is why we do not understand each another,”—I was told once by James Knowles, a very intelligent and insightful man. But this inability to understand another civilisation than their own becomes even more apparent when it comes to those the English call “inferior races.” This was the case with Spencer. He was absolutely incapable of understanding the savage with his respect for the tribe, or the hero of an Icelandic saga who considers “blood-revenge” as a duty, or the turbulent life, full of struggles and as a consequence full of progress, in the cities of the Middle Ages. The conceptions of Right which are encountered at those stages [of civilisation] were entirely foreign to Spencer. He saw naught there but savagery, barbarism, and cruelty and in that he definitely represented a retreat from Auguste Comte who had

understood the importance of the Middle Ages in the progressive development of [human] institutions—an insight too often forgotten since then in France.

Furthermore—and this error was even more serious—Spencer, like Huxley and so many others, had understood "the struggle for existence" in an utterly incorrect manner. He depicted it, not only as a struggle between different species of animals (wolves preying upon hares, many species of birds living on insects, and so forth), but also as a relentless struggle for the means of existence and for a place on earth within each species, between all the individuals of the same species. However this last struggle certainly does not exist in the proportions that Spencer and many Darwinists imagined.

How far Darwin himself was responsible for this erroneous conception of the struggle for existence, we cannot discuss here. But it is certain that when Darwin published The Descent of Man, twelve years after the appearance of The Origin of Species, he now understood the struggle for existence in a much broader and more metaphorical form than that of an endless struggle within each species. Thus he wrote in his second work that "the animal species which contain the greatest number of sympathetic individuals have the best chance of surviving and of leaving a numerous progeny" and he even developed the idea that the social instinct is, in every animal, a much stronger and much more permanent and active than the instinct of self-preservation. This is very different from what the "Darwinists" say to us.

In general, the chapters which Darwin devoted in his Descent of Man [on this subject] could have become a starting-point for development of a conception, exceedingly rich in consequences, on the nature and evolution of human societies (Goethe had already sensed it on the basis of one or two facts). But they went unnoticed. It was only in 1879, in a lecture given by the Russian zoologist [Karl] Kessler that we find a clear conception of the relations that exist in nature between the struggle for existence and mutual aid. "For the progressive evolution of a species," he said, providing some examples, "the law of mutual aid has much more importance than the law of mutual struggle."

A year later, Lanessan delivered a lecture, La lutte pour l'existence et l'association pour la lutte [The Struggle for Existence and Association for Struggle] and soon after that Büchner published his work Love in which he showed the importance of sympathy amongst animals for developing the first moral concepts; but by giving family love and compassion too prominent a position, he unnecessarily restricted his field of research.

It was easy for me to prove and develop in 1890, [in work later published] in Mutual Aid, Kessler's idea and to extend it to man on the basis of accurate observations of nature and modern research relating to the history of [human] institutions. Mutual aid is, in fact, not only the most effective weapon for every animal species in its struggle for existence against the hostile forces of nature and other enemy species, but it is also the principal instrument of progressive evolution. Even to the weakest animals it guarantees longevity (and consequently accumulation of experience), security for their offspring, and intellectual progress. This is why those animal species which most practise mutual aid not only survive better than the others, but they also occupy a higher position—

in their own respective classes (of insects, birds, mammals [and so on])—by the superiority of their physical structure and their intelligence.

This fundamental fact of nature was not noticed by Spencer. He accepted as a principle which did not even need to be proven—as an axiom—the struggle for life within each species: the fight to the death, "by the tooth and claw," for each bite of food. Nature, "stained with the blood of the gladiators," as depicted by the English poet Tennyson, was his image of the animal world. It was only in 1890, in an article for the Nineteenth Century, that he began to understand to some extent the importance of mutual aid (or rather the sentiment of mutual sympathy) in the animal world, and began to gather facts and make observations in this direction. But until his death, primitive man always remained for him the ferocious beast of imagination which lives only by tearing "by tooth and claw" the last bit of food from its neighbours.

It is evident that after having adopted as the foundation for his deductions such a false premise, Spencer could not build his synthetic philosophy without lapsing into a whole series of errors.

VII. The Role of Law in Society

Spencer was not, moreover, the only one to fall into these errors. Faithful to Hobbes, all the philosophy of the nineteenth century continued to consider primitives as a herd of wild beasts who lived in small isolated families and fought amongst themselves for food and for females—until a benevolent authority settled in their midst to impose peace. Even a naturalist like Huxley continued repeating this same fantastic assertion of Hobbes, and declared (in 1888) that in the beginning men lived by fighting "one against all" until, thanks to a few superior individuals, "the first society was founded" (see his article: The Struggle for Existence: a Programme). So even a Darwinian scientist like Huxley had no idea that, far from having been created by man, society existed long before man, amongst animals. Such is the strength of an established prejudice.

If we try to trace the history of this prejudice, it is easy to see that its origin lies in religion and churches. The secret societies of sorcerers, rain-makers, shamans, later the Assyrian and Egyptian priests, and later still, the Christian priests, have always sought to persuade men that "the world is steeped in sin"; that only the benevolent intervention of the shaman, sorcerer, saint, or priest prevents the power of evil from seizing man; that they alone can get a spiteful divinity not to engulf man by all sorts of evils, to punish him for his sins.

Early Christianity without doubt sought to weaken this prejudice with regard to the priest; but the Christian Church, based upon the very words of the Gospels concerning "the eternal fire," only strengthened it. The very idea of God the Son coming to die on earth to redeem the sins of humanity, again confirmed this way of thinking. And it is precisely this which later permitted the "Holy Inquisition" to subject its victims to the most atrocious tortures and to burn them on a slow fire: it thus offered them a chance to repent, to save them from eternal suffering. Besides, it was not only the Roman Catholic Church which acted in this way: all Christian Churches, faithful to the same principle, vied with one another to invent new sufferings and new terrors to correct men mired in "vice." Even now, nine hundred and ninety-nine people out of a thousand still believe that natural accidents—droughts, earthquakes and contagious diseases—are sent from on high by a divinity to bring sinful humanity to the true path.

At the same time, the State in its schools and universities maintained, and continues to maintain, the same belief in the natural perversity of man. To prove the necessity for a power placed above society and which works to implant the moral element in society—by means of punishment for violations of "the moral law" (which is identified, by means of a little trick, with the written law); to convince men that this authority is necessary is a matter of life and death for the State. For if men began to doubt the necessity of strengthening moral principles by the strong hand of authority, they would soon lose faith in the high mission of their rulers.

In this way all our religious, historical, juridical, and social education is permeated with the idea that man, if he were abandoned to himself, would again become a ferocious beast. Without authority, [they say,] men would eat each other: nothing can be expected of that animal the "mob" but the war of each against all. This human horde would perish if above it there were not the elect: the priest, the legislator and the judge, with their helpers—the policeman and the executioner. They are the ones who prevent the battle of all against all, they who raise men to respect the law, teach them discipline, and lead them with a steady hand until such future times when nobler conceptions have grown in "hardened hearts," so making the whip, the scaffold and the prison less necessary than they are today.

We laugh at the king who, when he was driven into exile in 1848, declared: "My poor subjects! Without me they will perish!" We mock the English tradesman who is convinced that his countrymen descend from the lost tribe of Israel and, for this reason, it is their destiny to bestow good government on "inferior races."

But do we not find in all nations this same exaggerated self-appreciation amongst the vast majority of those with a little learning?

And yet the scientific study of the development of societies and institutions brings us to completely different views. It proves that the habits and customs humanity created for the sake of mutual aid, mutual defence, and peace in general, were developed precisely by the nameless "mob." And it was these customs that permitted man, as with animal species existing today, to survive in the struggle for existence. Science shows us that the so-called leaders, heroes, and legislators of humanity have added nothing during the course of history which was not [already] developed in society by customary law. The best of them have merely expressed, endorsed these institutions. But the great number of these so-called benefactors also strove to destroy those institutions of customary law which hindered the establishment of a personal authority either to recast those institutions for their own benefit or in the interest of their caste.

Already, since the ancient times lost in the darkness of the glacial period, men lived in societies. And in these societies a whole series of rigorously observed customs and institutions were developed in order to make life in common possible. And later, throughout human evolution, this same creative power of the nameless multitude always worked out new forms of social life, of mutual aid, of guarantees of peace, as new conditions arose.

Furthermore, modern science clearly demonstrates that law, whatever its presumed origin—whether represented as being of divine origin or from the wisdom of a lawgiver—has never achieved anything other than to set, crystallise in a permanent form, or expand already existing

customs. All the codes of antiquity were merely collections of customs and habits, carved or written in order to preserve them for future generations. But by doing that, as well as customs already in general use, the [legal] code always added some new rules made in the interest of rich minorities and armed warriors—rules which expressed the emerging practices of inequality and servitude, [rules] advantageous for these minorities.

"Thou shalt not kill," said for example the law of Moses; "thou shalt not steal, thou shalt not bear false witness [against thy neighbour]." But to these excellent rules of conduct it also added: "Thou shalt not covet thy neighbour's wife, nor his slave, nor his ass," and by that it legalised for a long time slavery and put woman at the same level as a slave or a beast of burden. "Love your neighbour," said Christianity later; but it hastened to add by the mouth of the Apostle Paul: "Slaves, obey your masters" and "No authority except from God" —thereby legitimising and deifying the division [of society] into masters and slaves, and consecrating the authority of the scoundrels who then ruled in Rome.

Even the Gospels, while teaching the sublime idea of forgiveness which is the essence of Christianity nevertheless speak all the time of a vengeful God, and teach by this vengeance.

The same thing happened in the codes of the so-called "barbarians": the Gauls, the Lombards, the Alemanni, the Saxons, the Slavs, after the fall of the Roman Empire. These codes legitimised a custom, excellent no doubt, which was widespread at that time: that of paying compensation for wounds and murders instead of practising the law of retaliation (an eye for an eye, a tooth for a tooth, a wound for a wound, a life for a life) which was once commonplace. By so doing, the barbarian codes certainly represented an improvement on the law of talion, which had [previously] reigned in the tribe. But at the same time they also established the division of free men into classes, which at that time was just beginning [within those tribes].

So much compensation, said these codes, for a slave (to be paid to his master); so much for a free man; and so much for a chieftain—in which case the compensation was so high that it signified lifelong slavery for the murderer. The original idea of these distinctions was, no doubt, that the family of a prince, killed in a brawl, lost much more than the family of an ordinary free man in the event of the death of its head of the family; consequently, the first had a right, according to the ideas of the time, to a higher compensation than the second. But in making this custom of the time a law, the code established by this very fact, permanently, a division of men into classes—and it established them so well that thus far we have not yet demolished them.

And that is seen in the legislation of all times, including our own: the oppression of preceding periods is always passed down by the law to subsequent eras. The oppression of the Persian Empire was thus passed to Greece, that of Macedonia was passed to Rome; and the oppression and cruelty of the Roman Empire and the Eastern tyrannies were passed to the young barbarian States when they were in the process of formation, [as well as] to the Christian Church. By means of the law, the past fettered the future.

All the guarantees necessary for life in society, all the forms of social life in the tribe, the village community and the medieval city; all forms of relations between [different] tribes and, later [in the Middle Ages], city-republics, which subsequently served as the basis for international law, in

short—all forms of mutual support and defence of the peace, including the tribunal and the jury, were developed by the creative genius of the nameless multitude. Whereas, all laws, from the oldest to the present, have always been composed of these two elements: one strengthened (and fixed) certain customary forms of life, recognised by all as useful; and the other was an addition—often just merely an insidious way of expressing a [long-established] custom—which had the purpose of establishing or strengthening the nascent authority of the lord, the soldier, the kinglet and the priest: to strengthen and sanctify this authority.

This is where we are led by the scientific study of the development of societies that has been carried out over the last forty years by a great number of conscientious scientists. It is true that very often the scientists themselves dare not draw conclusions as heretical as those we have just read. But the thoughtful reader of necessity reaches these [conclusions] by reading their works.

VIII. The Position of Anarchy in Modern Science

What position, then, does Anarchy occupy in the great intellectual movement of the nineteenth century?

The answer to this question is already apparent in what was said in the preceding chapters. Anarchy is a conception of the universe based on the mechanical interpretation of phenomena which embraces the whole of nature, including the life of societies. Its method is that of the natural sciences; and every scientific conclusion must be verified by this method. Its tendency is to build a synthetic philosophy which will include all the facts of Nature—including the life of human societies and their economic, political and moral problems—without, however, falling into the errors made by Comte and Spencer for the reasons already indicated.

It is evident that Anarchy must, for this very reason, necessarily give to all the questions posed by modern life other answers and take another attitude than all the political parties and, to some extent, the socialist parties which have not yet broken with old metaphysical fictions.

Of course, the development of a complete mechanical conception of Nature and human societies has hardly begun in its sociological part, which studies the life and evolution of societies. Nevertheless, the little that has been done already bears—sometimes even unconsciously—the character we have just indicated. In the philosophy of law, in the theory of morals, in political economy and in the study of the history of peoples and institutions, anarchists have already proved that they are not content with metaphysical conclusions and that they seek their conclusions on a naturalist basis.

They refuse to be imposed upon by the metaphysics of Hegel, Schelling and Kant, by the commentators on Roman and Canonical law, by learned professors of State law, or by the political economy of metaphysicians—and they seek to give a clear account of all the questions raised in these areas, based on a mass of work produced over the last forty or fifty years from the point of view of the naturalist.

Just as the metaphysical conceptions of the "Universal Spirit," "the Creative Force of Nature," "the Loving Attraction of Matter," "the Incarnation of the Idea," "the Aim of Nature and its Reason for Being," "the Unknowable," "Humanity" understood in the sense of a being inspired by the

“Breath of the Spirit,” and so on—just as these conceptions are abandoned today by materialist (mechanical, or rather kinetic) philosophy, and the embryos of generalisations hidden behind these words are translated into the concrete language of facts, we try to do likewise when we tackle the facts of social life.

When metaphysicians wish to persuade a naturalist that the intellectual and emotional life of man unfolds according to “the inherent laws of the Spirit,” the naturalist shrugs his shoulders and continues his patient study of the phenomena of life, of intelligence, and of emotions in order to prove that all can be reduced to physical and chemical phenomena. He seeks to discover their natural laws.

Likewise when an anarchist is told that, according to Hegel, “every evolution represents a thesis, an antithesis and a synthesis” or else that “the aim of Law is to establish Justice, which represents a materialisation of the Supreme Idea,” or even when asked what is, according to him, “the Purpose of Life?”—the anarchist, likewise, shrugs his shoulders and asks: “How is it possible, in the midst of the current development of the natural sciences, there still exist ancients who continue to believe in this ‘palaver’? Backward beings who speak the language of the primitive savage when he ‘anthropomorphised’ nature and represented it as something that is governed by beings with human appearances?”

Anarchists do not let themselves be taxed by these “sonorous words” as they know that these phrases are always used to cover either ignorance—that is to say, incomplete investigation—or, which is far worse, superstition. This is why, when they are spoken to in this language, they move on without stopping; they continue their study of social conceptions and institutions, past and present, following the method of the naturalist. And they find, evidently, that the development of the life of societies is in reality infinitely more complex (and far more interesting for practical purposes) than we would be led to believe if it were judged according to these [metaphysical] expressions.

We have heard much lately of the dialectical method which the social democrats recommend to us for the development of the socialist ideal. But we completely reject this method which, moreover, is not accepted by anyone in the natural sciences. This “dialectic method” reminds the modern naturalist of something very antiquated—from a past-life and, thankfully, long since forgotten by science. None of the discoveries of the nineteenth century—in mechanics, astronomy, physics, chemistry, biology, psychology or anthropology—was made by the dialectical method. All were made by the inductive method—the only scientific method. And since man is a part of Nature, since his personal and social life is also a phenomena of nature—along with the growth of a flower, or the evolution of the social life of ants or bees—so there is no reason why we should, when we pass from the flower to man or from a village of beavers to a human city, abandon the method that had hitherto served us so well to search for another in the arsenal of metaphysics.

The inductive method which we employ in the natural sciences has so well proved its power that the nineteenth century was able to advance science more in a hundred years than had previously been done in two thousand years. And when, in the second half of the century, they began to apply it to the study of human societies nowhere did they hit a point where it was necessary to reject it,

to return to the mediaeval scholasticism resuscitated by Hegel. There is more. When naturalists, paying tribute to their bourgeois education while claiming to base themselves on the scientific method of Darwinism, desired to teach us: “Crush whoever is weaker than you: such is the law of nature!” it was easy for us to prove, by the same scientific method, that these scientists were on the wrong path: that such a law does not exist; that nature teaches us something else and that their conclusions were not at all scientific. It is the same for the assertion that they would have us believe that inequality of fortunes is “a law of nature” and that capitalist exploitation represents the most advantageous form of social organisation. It is precisely the application of the method of the natural sciences which enabled us to prove that the so-called “laws” of bourgeois social science—including current political economy—are by no means laws but mere assertions or else assumptions that nobody has ever tried to verify.

One more word. Scientific research is only fruitful on condition that it has a particular purpose: to be undertaken with the intention of finding an answer to a clear, well posed question. And each investigation is even more fruitful the clearer we see the relations existing between the question that is posed and the fundamental lines of our general conception of the universe. The better it fits into this general conception, the easier is the solution.

Well, the question that Anarchy has posed could be expressed as follows: “Which social forms best guarantee, in such a given society, and by extension, inhumanity in general, the greatest sum of happiness, and, consequently, the greatest sum of vitality?”“Which forms of society allow this sum of happiness to grow and to develop in quantity and quality the best—that is to say, will enable this happiness to become more comprehensive and more general?” Which, it must be noted in passing, also gives us the formula of progress. The desire to help evolution in this direction determines the character of the social, scientific, artistic, etc. activity of the anarchist.

IX. The Anarchist Ideal and Previous Revolutions

Anarchy, as we have already said, was born from the indications of practical life.

Godwin, contemporary of the Great [French] Revolution of 1789–93, had seen with his own eyes how governmental authority, [although] created during the Revolution and by the Revolution, had in its turn become an obstacle to the development of the revolutionary movement. He was also aware of what was happening in England under cover of Parliament: the pillage of communal lands, the sale of profitable [official] positions, the hunting of the children of the poor and their removal from workhouses, by agents who traversed England for that purpose, to the factories of Lancashire where many perished; and so on. Godwin realised that a government, even if it were the Jacobin “One and Indivisible Republic,” could never accomplish the necessary revolution—a communist social revolution; that even a revolutionary government, simply because it is the guardian of the State and the privileges every State has to defend, soon becomes a hindrance to the revolution. He understood and proclaimed this anarchist idea that, for the triumph of the revolution, men must first discard their faith in the Law, Authority, Unity, Order, Property, and other superstitions inherited from their slave past.

The second theorist of Anarchy who came after Godwin—Proudhon—lived through the failed Revolution of 1848. He, too, could see with his own eyes the crimes committed by the Republican

government, and at the same time he became convinced of the impotence of statist socialism. Under the still fresh impression of what he had experienced during the movement of 1848, he wrote his General Idea of the Revolution in which he fearlessly proclaimed Anarchy and the abolition of the State.

Finally, in the International [Workers' Association] the anarchist conception also developed after a revolution, that is to say after the Paris Commune of 1871. The complete revolutionary impotence of the Council of the Commune although it contained, in very accurate proportions, representatives of all the revolutionary fractions of the time (Jacobins, Blanquists, and Internationalists) as well as the incapacity of the General Council of the International residing in London and its claim, as inept as it was injurious, to govern the Parisian movement by orders issued from England, both these lessons opened the eyes of a great number. They brought many members of the International, including Bakunin, to reflect on the evil of every kind of authority—even were it as freely elected as it was in the Commune and the Workers' International.

Some months later, the decision of the General Council of the International, taken at a clandestine conference convened in London in 1871, instead of an annual Congress, highlighted even more the drawbacks of a government in the International. According to this disastrous resolution the forces of the Association, which until then were joined together for an economic-revolutionary struggle—the direct struggle of the workers unions against the capitalism of the bosses—were going to get involved in an electoral, political, and Parliamentary movement, where they could only wither and be destroyed.

This decision led to the open rebellion of the Latin Federations [of the International]—Spanish, Italian, Jura, and, in part, Belgian—against the General Council in London; and from this revolt dates the anarchist movement which we see continuing today.

Thus the anarchist movement resumed each time under the impression of some great practical lesson. It originated in the teachings of life itself. But once underway, it also immediately sought to find its expression and its theoretical and scientific basis. Scientific, not in the sense of adopting an incomprehensible jargon, or clinging to ancient metaphysics, but in the sense of finding its basis in the natural sciences of the time, and becoming one of its subdivisions.

At the same time, the anarchists worked to develop their ideal.

No struggle can be successful if it remains unconscious—if it does not produce a concrete account of its actual aim. No destruction of what exists is possible without, during the struggles leading to the destruction and during the period of destruction itself, already visualising mentally what will take the place of what you want to destroy. You cannot even make a theoretical critique of what exists without already picturing in the mind a more or less clear image of what you would like to see in its place. Consciously or unconsciously, the ideal—the concept of well-being—always takes shape in the mind of whoever criticises existing institutions.

This is especially the case for men of action. To tell men: "First destroy capitalism, or autocracy, and then we shall see what we shall put in their place" is simply to deceive oneself and to deceive others. Never has a real force been created by deception. Indeed, even the person who speaks in

such a way always has, nevertheless, some conception of what he would like to see instead of what he is attacking. Thus, amongst those working to destroy autocracy in Russia, some imagine a constitution in the English or German style emerging in the near future. Others dream of a republic, subject perhaps to the powerful dictatorship of their circle, or even a republic-monarchy as in France, or a federative republic as in the United States. Others, finally, are already thinking about a still greater limitation of State power: greater freedom for cities, municipalities, workers' unions and all kinds of groups united together by federal links.

And anyone who attacks Capitalism always has a definite or merely vague idea of what they want to see in the place of existing bourgeois capitalism: State Capitalism, or some kind of State Communism, or else, finally, a federation of more of less communist associations for the production, exchange, and consumption of what they obtain from the soil or what they manufacture.

Each party has its own conception of the future. It has its ideal which enables it to judge all events occurring in the political and economic life of nations as well as to find its own means of action and best enable it to move towards its goal.

It is therefore natural that Anarchy, although born in every-day struggles, has also worked to develop its ideal and this ideal, this purpose, these aims soon separated the anarchists in their means of action from all political parties as well as, to a large extent, from the socialist parties which thought they could retain the ancient Roman and Canonical idea of the State and carry it into the future society of their dreams.

X. Anarchy

Principles

Anarchists, guided by various historical, political, and economic considerations as well as the lessons of modern life have come, as we have discussed, to an understanding of society very different from that drawn by all political parties aiming to get themselves into power.

We stand for a society in which the relations between its members are regulated, not by laws—legacy of a past of oppression and barbarism—not by any authorities—whether they are elected or derive their power by right of inheritance—but by mutual agreements, freely made and always revocable, as well as [social] customs and habits, also freely accepted. These customs, however, must not be petrified and crystallised by law or superstition; they must be continually developing, adjusting to new needs, the progress of knowledge and invention, and with the growth of a higher and higher social ideal.

So—no authority which imposes on others its will. No government of man by man. No stagnation [immobilité] in life: [but] a continual evolution—sometimes faster, sometimes slower—as in the life of Nature. Freedom of action left to the individual to develop all his natural abilities, of his individuality. In other words, no action imposed on the individual under threat of social punishment, whatever it may be, or by a supernatural, mystical, penalty: society asks nothing of the individual that he does not freely agree to undertake at a given moment. With this—complete equality of rights for all.

We thus acknowledge [the possibility of] a Society of equals, without constraint of any kind, and despite the lack of constraint, we do not fear that, in a society of equals, the anti-social acts of a few individuals would take threatening proportions. A society of free men would be able to avoid these better than our current societies which entrust the guarding of their social morality to police, spies, prisons—universities of crime—slave-driving guards, executioners and their suppliers. Above all it will be able to preventanti-social acts.

It is obvious that so far no society has existed which practised these principles. But at all times, humanity has expressed a tendency towards their realisation. Each time that some portions of society succeeded for a certain time to overthrow the authorities which oppressed them, or to efface the inequalities which had established themselves (slavery, serfdom, autocracy, government by certain castes or classes); each time a new spark of freedom and equality soared out of society, the people, the oppressed, sought to put into practice, if only partially, the just stated principles.

We may say, therefore, that Anarchy is a certain ideal of society, which differs fundamentally from that which has been advocated hitherto by most philosophers, scientists and politicians, all of whom had the pretension to govern men and give them laws. It was never the ideal of the privileged but often it was the more or less conscious ideal of the masses.

However, it would be wrong to say that this ideal society is a utopia, because in everyday language we attach to the word "utopia" the notion of something that cannot be realised.

Fundamentally, the word "utopia" should be applied only to those conceptions of society that are based solely upon what the writer finds desirable from a theoretical point of view; never to those conceptions based on the observation of what is already developing in society. So one must place amongst the many utopias the Republic of Plato, the Universal Church dreamt of by the popes, the Napoleonic Empire, the dreams of Bismarck and Messianism of the poets who await the arrival, one day, of a saviour who will bring to the world grand ideas of renovation. But it would be wrong to apply the word "utopia" to predictions supported, like those of Anarchy, by the study of tendencies already emerging in the evolution of society. Here we leave utopian foretelling to enter the domain of science.

In our case, it is all the more wrong to speak of utopia, [for] the trends that have been indicated by us have already played an extremely important role in the history of civilisation since it is they which gave birth to the Common Law, Law which dominated Europe from the fifth to the sixteenth century. These tendencies now assert themselves again in civilised societies, after more than three centuries of experience of the State. It is on these observations, whose importance will not escape the historian of civilisation, that we base ourselves when we see in Anarchy a possible, realisable ideal.

We are told that it is without doubt an ideal far from its realisation. But to this we answer by recalling the end of the eighteenth century—at the time when the United States constituted itself—when it was regarded as an absurd idea to want to establish a society other than a monarchy on such a scale. And yet the republics of North and South America, along with France, proved that the "utopians" were not on the Republican side; they were amongst the monarchists.

The “utopians” were those who, guided only by their desires, did not want to take account the new tendencies which were emerging—those who attributed too much stability to the things of the past, without asking themselves whether they were not just the result of certain temporary historical conditions.

We have already mentioned at the beginning of this work that when we study the anarchist idea we find it has a double origin: on one side, criticism of hierarchical organisations and authoritarian conceptions in general; and, on the other side, the analysis of tendencies that are emerging in the progressive movements of humanity—in the past and especially in modern times.

Since the remotest times of the Stone-Age, men have realised the disadvantages that arose when they let some of them acquire personal authority, even if they were the most intelligent, the bravest, or the wisest. Also our ancestors worked from the earliest times to develop institutions that allowed them to fight against the establishment of such an authority. Their tribes, their clans, later the village commune and the guilds of the Middle Ages (guilds of good neighbours, of crafts and arts, of merchants, of hunters, etc.), and finally the free city of the twelfth to the sixteenth century are institutions that sprung up from the people—not the leaders—for resistance against the authority they saw being acquired either by foreign conquerors or by individuals within the clan, tribe or city.

The same popular tendency emerged in the religious movements of the masses across Europe during the Hussite uprising in Bohemia and the movement of the Anabaptists, who were the precursors of the Reformation.

Much later, in 1793–1794, the same current of thought and action emerged in the remarkably independent and constructive activity of the “Sections” of Paris and the great cities, as well as a large number of small communes. And later still we find the same tendency in the workers unions which were formed in England and France as soon as modern industry started to develop—despite the Draconian laws which prohibited these unions. Here again we find at work the same popular spirit trying to defend itself, this time against the capitalists.

Anarchist Ideas amongst the Ancients; in the Middle Ages—Proudhon—Stirner

Popular movements of an anarchist character could not fail to find some echo in written literature. Indeed, we already find anarchist ideas amongst the philosophers of antiquity, notably in Lao Tze in China and in some of the earliest Greek philosophers such as Aristippus and the Cynics; as well as Zeno and certain Stoics. However, since the anarchist spirit has its origin primarily in the masses and not within the small aristocracy of scholars and these felt little sympathy for these popular movements, intellectuals generally did not seek to clarify the underlying idea that inspired these movements. At all times, philosophers and scholars preferred to promote the governmental tendency and the spirit of hierarchical discipline. From the dawn of science, the art of governing was their preferred study and that is why it is not surprising that philosophers of the anarchist tendency were so rare.

However, the Greek Stoic Zeno was one. He preached free community without government, and opposed the governmental utopia—Plato’s Republic. Zeno already indicated the instinct of

sociability that nature, according to him, had developed in opposition to the selfish instinct of preservation of the individual. He foresaw a time when men would unite across borders and constitute "the Cosmos," the Universe—no longer needing laws, nor courts, nor temples, nor money to exchange their services between each other. Even his wording, it appears, resembles in a striking manner that used by anarchists today.

The Bishop of Alba, Marco Girolamo Vida, affirmed in 1556 similar ideas against the State, its laws, and its "supreme injustice." We also meet the same ideas amongst the Hussites (especially in Chelcicky during the fifteenth century) and the early Anabaptists and their precursors of the ninth century—the Rationalists in Armenia.

Rabelais, in the first half of the sixteenth century, Fénelon towards the end of the seventeenth century, and especially the Encyclopaedist Diderot at the second half of the eighteenth century, developed the same ideas, which found, as has just been mentioned, some practical applications during the Great [French] Revolution.

But it was the Englishman William Godwin who, in 1793, first expounded, in his An Enquiry Concerning Political Justice, the political and economic principles of Anarchy. He did not use the word anarchy, but he expressed very well its principles by attacking laws, proving the uselessness of the State, and saying that it is only with the abolition of the courts that we will succeed in establishing true justice—the only real foundation of any society. As regards property, he called for communism.

Proudhon was the first to use the word Anarchy (no government) and to submit to severe criticism the vain efforts of men to give themselves a government which could prevent the powerful from dominating the weak and, at the same time, remain under the control of the governed. The futile attempts made in France since 1793 to give itself a Constitution that fulfilled such an end and the failure of the Revolution of 1848 gave him abundant facts for this critique.

An enemy of all forms of State socialism, of which the communists of this time (the forties and fifties of the nineteenth century) represented only a fraction, Proudhon forcefully attacked all plans at revolution in this direction. And, taking as a basis the system of "labour notes" proposed by Robert Owen, he developed the concept of "mutualism" which would render any kind of political government unnecessary.

The exchange values of all goods can be measured, he said, by the amount of labour needed in society to produce each product, all exchanges would be made by means of a national bank that would accept payment in labour notes. A Clearing House, as do all banks today, would establish the daily balance of entries and payments to be made between all branches of the National Bank.

The services exchanged in this way amongst the various people would be equivalents. Moreover, the National Bank would be in a position to lend, not in money but in labour notes, the funds needed to the producer associations for production; and these loans would be interest-free, since to cover administration costs it would be enough to pay one percent, or even less, annually on the amount loaned. Under these conditions of interest-free loans, capital would lose its pernicious character; it could no longer be used as an instrument of exploitation. Let us add that Proudhon

provided ample details about his mutualism system to confirm its anti-government and anti-statist ideas. Proudhon probably did not know his English precursors; but the fact is that the mutualist portion of his programme had been already developed in England, in 1824, by William Thompson (who was a mutualist before becoming a communist) and the English followers of Thompson—John Gray (1825–1831), [Thomas] Hodgskin (1825–1832) and J. F. Bray (1839). Of course, these authors had not articulated Anarchy, as it was expressed by Proudhon and his successors, but it is very true—as noted by the English Professor Foxwell in his introduction to the English translation of the remarkable book by A. Menger, The Right to the Whole Produce of Labour (Vienne, 1886)—that a current of anarchist thought is felt in all of English socialism during those years.

In the United States, the same tendency was represented by Josiah Warren, who, after having taken part in Robert Owen's colony, "New Harmony," turned against communism and founded, in 1827, in Cincinnati a store where goods were exchanged on the basis of value measured by work-hours, that is to say of labour notes. Similar institutions existed until 1865 under the names of Equity Stores, Equity Village, and House of Equity.

The same ideas of exchange based on the measurement of value by the amount of work required to produce each article were spread in Germany, in 1843 and 1845, by Moses Hess and Karl Grün and in Switzerland by Wilhelm Marr, who thereby fought the authoritarian-communist teachings of Weitling (descendants, also, of the French Babouvists).

In addition, also in complete opposition to the authoritarian communism of Weitling which had found a great number of adherents amongst German workers, a German Hegelian Max Stirner (Johann Kaspar Schmidt was his real name) in 1845 published a book, The Ego and His Own, which was rediscovered, so to speak, a few years ago by J. H. MacKay and which caused quite a stir in our anarchist circles where it was considered a sort of manifesto of the individualist anarchists.

Stirner's work is a revolt against government and against the new tyranny which would be imposed [upon humanity] if authoritarian-communism succeeded in being introduced. Reasoning like a true metaphysician of the school of Hegel, Stirner proclaimed the rehabilitation of the "I" and the "Supremacy of the individual," and so comes to preach "A-moralism" (no morals) and "the Association of egoists."

However, it is obvious—as already highlighted by anarchist writers and recently again by the French professor V. Basch in his interesting work L'individualisme anarchiste Max Stirner[Anarchist Individualism Max Stirner] (Paris, 1904)—that this kind of individualism, by claiming "full development"—not for all members of society, but only for those that would be considered the most gifted, without thinking about the development of all—is merely a disguised return to the monopoly of education that exists today for the few "nobles" and bourgeois, under the patronage of the State. It is a "right to full development" for a privileged minority.

But such a monopoly cannot be maintained without it being protected by a monopolist legislation and coercion, organised by the State—with the result that the claims of these individualists necessarily leads them to a return to the idea of the State and authority that they themselves have criticised so well. Their position is thus the same as that of [Herbert] Spencer or the "Manchester

school" of economists who also begin with a severe criticism of the State but end by recognising its functions in full in order to maintain the monopoly of property, which the State is always the true protector.

XI. Anarchy (continued)

Socialist Ideas in the International—Authoritarian Communists and Mutualists

We have indicated the growth of the anarchist idea from the French Revolution and Godwin to Proudhon. Its next flourishing was achieved within the great International Workers' Association, which inspired the workers with so much hope and the bourgeoisie with so much terror in the years 1868–1870, just before the Franco-Prussian War.

That this Association was not founded by Marx, as Marxists claim, is obvious. It was the outcome of the meeting, in 1862, in London of a delegation of French workers, who had come to visit the second International Exhibition, and representatives of English Trade Unions who were joined by some English radicals to receive the delegation. The links established during this visit were strengthened in 1863 on the occasion of a meeting in sympathy for Poland and the Association was finally established the following year.

Already in 1830 Robert Owen had tried to organise an "International Union of All Trades" at the same time as founding in England the "Grand National Trades Union."

But the idea had soon to be abandoned because of the savage prosecutions that the English Government directed against the National Union. However, the idea was not lost. It smouldered under the ashes in England; it found supporters in France; and, after the defeat of the Revolution of 1848, it was carried by French refugees to the United States and spread there in a paper, L'International [The International].

In 1862, the French workers who came to London, being mostly Proudhonian "Mutualists," and the English Trade Unionists belonging mainly to the school of Robert Owen, English "Owenism" thus joined hands with French "Mutualism"—and the result was the creation of a strong international workers organisation to fight the bosses on the economic field and to break, once and for all, with all purely political radical parties.

In Marx and others this union of the two main socialist workers currents of the time found the support of the debris from the secret political organisation of the Communists, which represented what was still preserved of the secret societies of Blanqui and Barbès which, like the German communist secret societies, had their origin in the conspiracy of Babeuf.

The reader has seen in a previous chapter (chapter V) that the years 1856–1862 were marked by a wonderful development in the natural sciences and philosophy. These were also the years of a general political awakening of radical ideas in Europe and America. These two movements also awakened the masses of workers who were beginning to understand that the task of preparing the proletarian revolution was their responsibility. The International Exhibition of 1862 which was portrayed as a great celebration of the world's industry would become a new point of departure in the struggles of Labour for its emancipation; and now the International [Workers'] Association,

by openly announcing its break with the old political parties and the resolve of the workers to take into their own hands their liberation, necessarily produced a profound impression.

Also the International began to spread rapidly in the Latin countries. Its fighting strength soon became threatening [to the bourgeoisie]; and as for ideas, the congresses of its Federations and its annual congress of the entire Association provided the workers an opportunity to discuss what the social revolution should consist of and how they could achieve it. Thus they simulated the creative power of the working masses in search for new forms of organisation [groupement] for production, consumption and exchange.

Everywhere it was expected that a great European revolution would break out soon. Yet there was no even remotely definite idea concerning the political forms that the revolution might take nor on the first steps it would have to make. On the contrary, several opposing currents of socialist thought met and clashed within the International.

The dominant idea of the Association was the direct struggle of Labour against Capital on the economic field—that is to say, the emancipation of Labour, not by legislation which the bourgeoisie consent to, but by the workers themselves wrestling concessions from the bosses and someday forcing them to permanently capitulate.

But how the liberation of the workers from the capitalist yoke would be accomplished? What form the new organisation of production and exchange would take? On this the socialists were just as divided in 1864–1870 as they were twenty years before, when in 1848 the representatives of the different socialist schools met in the Constituent Assembly of the Republic sitting in Paris.

Like their French predecessors of 1848, whose various aspirations were summarised so well by Considerant in his book Le Socialisme devant le Vieux Monde, the socialists of the International did not rally under the banner of one single doctrine. They wavered between several solutions and no solution was sufficiently right, nor obvious enough, to rally minds; especially as the most advanced had not yet broken with respect for Capital and Authority.

So let us take a look at the various currents.

There was, first, the direct legacy of the Jacobinism of the Great [French] Revolution—the conspiracy of Babeuf [in 1795]—that is to say, the secret societies of the French Communists (the Blanquists) and the German Communists (the Communist-League). Both lived upon the traditions of the fierce Jacobinism of 1793. We know that in 1848 they dreamt of someday seizing political power in the State by means of a conspiracy—perhaps with the assistance of a dictator—and of establishing, on the model of the Jacobin societies of 1793 (but this time in favour of the workers), “the dictatorship of the proletariat.” This dictatorship, they thought, would impose communism by means of legislation.

To remain a proprietor would be rendered so onerous by means of all kinds of restrictive laws and taxes that the property-owners would be happy to rid themselves of their properties and hand them to the State. Then “armies of labourers” would be sent to cultivate the fields: and industrial production, also carried out for the State, would be organised on the same semi-military basis.

The same ideals were widespread at the time of the foundation of the International, and they even continued to circulate much later: in France, amongst the Blanquists, and in Germany, amongst the Lassalleans and Social Democrats.

On the other hand, the workers of the school of Robert Owen were diametrically opposed to those Jacobin ideas. They absolutely refused to resort to the force of government and above all counted upon the action of trade unions to [both] make the revolution and establish a socialist society. The English Owenites did not want communism; but, as with the French Fourierists, they attached a great importance to freely formed and federated communities and groups which they emphasised possess in common the land and factories as well as stores for what was produced by their members. They would work either jointly or separately, according to the needs of production, and the remuneration for labour within the group as well as exchange between communities would be made in labour notes. These would represent the amount of hours of work given by each to communal cultivation or in the workshops and factories of the community. Or else, they would be paid by the community for the goods manufactured individually and brought to the communal exchange stores.

The same idea of remuneration by labour notes was accepted, as we have seen, by Proudhon and the Mutualists. They also rejected the intervention of State force in the society which would arise from the revolution. They declared that what today represents functions of the State in economic matters would be rendered unnecessary, all exchanges taking place by means of Banks of the People and Clearing Houses while education, sanitary arrangements, essential services [les entreprises nécessaires], the means of communication, etc. would be placed in the hands of independent communes.

The same idea of labour notes, substituted for money in all exchanges, but alongside the idea of the State becoming the owner of all land, mines, railways, and factories, was propagated by two remarkable writers (stubbornly ignored by socialists today) Pecqueur and Vidal, who gave their system the name Collectivism. Vidal was the secretary of the Luxembourg Commission [in 1848] and at the same time Pecqueur wrote an entire treatise on this subject. He developed his system in detail—even in the shape of the laws which, according to him, it would be sufficient for the [National] Assembly to vote for to complete the social revolution.

By the time of the foundation of the International the names of Vidal and Pecqueur seemed to be entirely forgotten, even by their contemporaries, but their ideas were very widespread and they were soon propagated, like a new discovery, under the names of “scientific Socialism,” “Marxism,” and “Collectivism.”

Socialist Ideas in the International—Saint-Simonism

Alongside these various schools that have just been mentioned, there were also the ideas of the Saint-Simonist school. After having a strong hold on minds before 1848, they still exerted a profound influence on the socialist conceptions of the members of the International.

A large number of brilliant writers and thinkers, politicians, historians and industrialists had developed in the thirties and forties under the influence of Saint-Simon. It suffices to mention here

Auguste Comte in philosophy, Augustin Thierry amongst the historians, and Sismondi amongst the economists. All of the social reformers of the time were influenced by this school.

The progress accomplished in humanity, they said, had consisted thus far in transforming slavery into serfdom, and serfdom into wage-labour. But the time had arrived when it would become necessary to abolish in its turn wage-labour. And with wage-labour, individual property of what is needed to produce will disappear in turn. We must not see in this change anything impossible, they added, as property and authority have undergone many modifications in history. New modifications are imperative today, they will necessarily be accomplished.

The abolition of private property, said the Saint-Simonists, could be done gradually, by a series of measures (of which the Great [French] Revolution, remember had already taken the initiative). These measures would enable the State to appropriate—for example, by means of strong inheritance taxes—an ever increasing portion of the properties transmitted from one generation to another. Individual inheritance would thus be reduced and eventually disappear since the rich themselves would realise the advantages in abandoning the privileges belonging to a civilisation on its way out. So the voluntary relinquishing of property by the wealthy and the legal suppression of inheritance were to establish the Saint-Simonist State as the universal proprietor of land and industry, the supreme regulator of labour, absolute manager and director of the three functions: Art, Science and Industry.

Everyone, being a worker in one of these branches, would thus be an employee [fonctionnaire] of the Saint-Simonist State, whose government would be composed of a hierarchy of the "best men"—the best in science, in the arts, in industry.

The distribution of products produced would be made in this system according to the expression: To each according to his capacity, to each capacity according to its works.

Apart from these predictions about the future, the Saint-Simonist school and positive philosophy, which derives its origin from it, gave the nineteenth century some very remarkable historical works in which the origins of authority, private property and the State were discussed in a truly scientific manner. These works retain to this day all their value.

At the same time, the Saint-Simonists subjected to severe criticism the classical school of political economy of Adam Smith and [David] Ricardo, which was later known as the "Manchester school" which preached "non-intervention of the State."

But while they thus fought the principle of industrial individualism and competition, the Saint-Simonists fell into the same error that they had combatted in the beginning, when they criticised the military State and its hierarchical classes. They ended by recognising the same omnipotence of the State and they based their system—as had been already noticed by Considerant—on inequality and authority as well as on a hierarchy of administrators. They even came to give to their governmental hierarchy the character of a priesthood.

Thus the Saint-Simonists differed from the communists [of their time] by the purely individual share that they allocated to each [person] from the mass of goods produced by the community. Despite the excellent work that several of them had produced in political economy, they had not

yet managed to conceive the production of wealth as a social fact—a global fact. If they had done so, they would have necessarily been led to understand that it is physically impossible to determine with justice the share to be apportioned to each producer out of the total wealth produced.

On this point, there was a profound difference between the communists and the Saint-Simonists. But there was one point on which both were agreed. Both ignored the individual and his rights. All that the communists conceded him was the right to elect his administrators and rulers—which the Saint-Simonists only accept with reluctance. Originally, they did not even recognise the right of election. But under communism, as under Saint-Simonism, the individual remained an employee [fonctionnaire] of the State.

With Cabet, the author of Voyage to Icaria and founder of a communist colony in America, Jacobin communism and the suppression of individuality reached their fullest expression.

Thus in the Cabet's Voyage we see authority, the State, everywhere, even in the kitchen of every household. Not content with providing a "Cook's Guide" to every family, the Republic of Icaria draws up a list of approved foodstuffs, makes its farmers and workers produce them and distributes them; "and as a person," Cabet tells us, "cannot have other foodstuffs than that which it distributes, you understand that no one can consume any other foodstuffs than those which it approves of." (Voyage en Icarie, 5th edition, 1848, p. 52)

The committee goes so far as to regulate the number of meals, their times, their duration, the number of dishes, their type and their order of service. As for clothing, they are all ordered by the Committee, on a template schema, the uniform everybody wears indicating the conditions and positions of the individual. The workers, always making the same things, are a regiment—"so much order and discipline prevail!" exclaimed Cabet.

Needless to say that no one can publish anything except with approval of the Republic—and that after examination and authorisation, duly received, to be an author.

It is doubtful whether Cabet's utopia in its entirety had many followers in the International but the spirit of this utopia remained. It is absolutely certain—and we felt it strongly in the discussions that we engage in with authoritarians, especially with the German communists—that even the regulation that has just been quoted and which seems to us so absurd today, was still looked upon then as an expression of wisdom. Our criticisms were answered by these words of Cabet:

"Without doubt the Community necessarily imposes constraints and fetters; for its principle mission is to produce wealth and happiness; and for it to avoid duplication and waste, economise and increase agricultural and industrial production, it is absolutely necessary that Society assigns, arranges and directs all. It must submit all wills and actions to its rule, to its order, to its discipline. The good citizen must even abstain from all that has not been ordered." (Voyage to Icaria, 5th edition, p. 403)

And, what is worse, it still retained with the authoritarians this belief, as stated by Cabet, that, after all, "the Community is no more impossible with a Monarch than with a republican President." It was this idea which paved the way for the coup d'état of Napoleon III and which enabled the authoritarian socialists to so easily "leave alone" the bourgeois reaction.

Finally we must mention the school of Louis Blanc who at the time of the founding of the International had numerous followers in France and Germany where it was represented by a solid body of Lassalleans. These socialists, just as statist as the preceding ones, considered that the transfer of industrial property [currently] in the hands of Capital into those of Labour could be accomplished if a government, born of a revolution and inspired by socialist ideas, aided the workers to organise themselves, on a vast scale, co-operative workers associations to which the government would lend the necessary capital. These associations are united together in an extensive system of national production. Equal remuneration of all could be accepted as a transitional form—the ultimate goal being to arrive one day at the distribution of products according to the needs of each producer.

It was, as can be seen—as very well said by Considerant—"a communist Saint-Simonism" placed under the control of a democratic State.

Based on a large system of national credit which would lend money at a very low rate of interest and thus be placed in a position to compete with the production of the capitalists; supported in addition by orders [for goods and services] from the State, these workers associations would soon drive out capitalist industry and replace it.

They would also know to spread to agriculture. This economic, socialist goal—and not merely the democratic ideal of bourgeois politicians—workers were never to lose sight of.

All these ideas developed by socialist propaganda before 1848, by the revolution of February and June 1848, with various modifications in the details, were widespread in the International [Workers'] Association. Differences of opinions were strong, but the supporters of these schools were in agreement, as we have just seen, in recognising as the basis for the next revolution a strong government which would hold in its hands the entire economic life of the nation. They agreed on recognising the centralised and hierarchical organisation of the State.

Fortunately, alongside these Jacobin ideas there were also, to counterbalance them, the ideas of the Fourierists, which we will now analyse.

XII. Anarchy (continued)

Socialist Ideas in the International—Fourierism

Fourier, contemporary of the Great [French] Revolution, was no longer alive when the International was founded. But his views had been popularised so well by his followers—especially by Considerant who had given them a certain scientific authority—that, consciously or not, the most enlightened minds of the International were under the influence of Fourierism.

However, it should be noted that to understand the influence of Fourierism in those years that the dominant idea of Fourier was not that of the association of Capital, Labour and Talent for the production of wealth that is always found placed at the forefront in the history books about socialism. Its principal aim was to put an end to individual commerce that is carried out for profits, and which necessarily leads to considerable shady speculations. To achieve this he proposed to create a free national organisation for the exchange of all products. It was, as can be seen, reviving

the idea that the Great [French] Revolution tried to achieve in 1793–1794, after the people of Paris had expelled the Girondins from the Convention and the law of the maximum had been approved.

To use Considerant's words from his Socialisme devant le Vieux Monde (a work we strongly recommend to modern socialists), Fourier saw the means of putting an end to all the infamies of present exploitation in "the bringing into direct relation the producer and the consumer, by organising intermediary communal agencies—depositaries, not the owners, of the produce, taking it directly from the source of production and delivering it directly for consumption."

Prices, under these conditions, would no longer be subject to speculation. They would be increased only "by straightforward transportation, maintenance and administration costs, which would form an almost imperceptible surcharge."

Fourier, placed by his parents into a commercial firm, had already in his childhood developed a dedicated hatred of commerce, whose frauds he saw close up. Thereupon he took an oath to fight it. Much later, during the Great [French] Revolution, he could see close up the atrocious speculations that were conducted on the sale of the national goods as well as the rising prices of all produce during the war. He had to see that neither the Jacobin Convention nor the Terror could control these speculations; and could understand how the absence of a socialised exchangeparalysed even the effects of an economic revolution accomplished by the expropriation of the property of the Church and nobility in favour of democracy. Thereupon he had to foresee the necessity for the nationalisation of trade and appreciate the attempt made in this direction by the sans-culottes in 1793 and 1794. He became its apostle.

The free Community, depository of produce, must provide, in his opinion, the solution of the great problem of the exchange and distribution of essential products. But the community would not be the owner [of the stored produce] as today are merchants or even current co-operatives. It would only be a depositary. It would be an agency, receiving the products for storage for distribution, but not imposing any tribute on the consumers nor speculating on price fluctuations.

Tackling the social problem by consumption and exchange is what makes Fourier the deepest socialist thinker.

But Fourier did not stop there. He extended his idea. He supposed that all the families of a rural or industrial, preferably mixed, community constitute a phalanx. They would put in common their land, their livestock, their tools and [their] machines, and they would cultivate their land, or pursue their industry, as if the land, the machines, etc., were their common property—while taking, however, an exact account of what each member had contributed to the common capital.

Two paramount principles, he said, must be respected in the phalanx. First, there must be no disagreeable labour. All work must be organised, distributed, and diversified so that it is always attractive. And then, [second,] no form of constraint could be accepted in a society organised on the principle of free association, no form of constraint could be tolerated, and none would be needed.

With some intelligent attention to the needs of every member of the phalanx and a little tolerance for the particularities of the various personalities [caractères], and combining agricultural,

industrial, intellectual, and artistic work, the members of the phalanx would soon recognise that even the passions of men, which, in the current [social] organisation very often represent an evil and a danger and, for this reason, always serve as an excuse for the use of force—the same passions can be a source of progress. It is sufficient to recognise them and find their social applications. New enterprises, dangerous adventures, social activities, the need for change, etc., would give them the necessary outlets.

It is true that Fourier still paid tribute to statist ideas. Thus he admitted that in order to trial his Association—to attempt "a simple harmony" which would be the precursor of "true harmony"—"a prince could intervene." "To the chief of France can be reserved the honour of extracting the human race from social chaos, of being the founder of Harmony and the liberator of the globe," he said in one of his early writings; and he repeated the same ideas in 1808, in his Théorie des quatre mouvements. Later, he even went so far as to appeal to Louis-Philippe for this purpose (Charles Pellarin, Fourier: sa vie, sa théorie, 4th edition, p. 114). But it was always only for attempting the preliminary trial.

As for "true harmony," "universal harmony," it had no government. Nor could this harmony be introduced "piece by piece." The transformation had to be social, political, economic and moral all at once. And when Fourier came to the critique of the State, he was as pitiless as we are today. "Political disorder," he said, "is at once the consequence and the expression of social disorder. Inequality is translated into inequity. The State, in the name of which power acts, is resolutely, by origin and principle, the servant and protector of the privileged classes against the others." And so on.

In the "harmonic society," which will arise from the full application of his principles, all constraint must be excluded.

Writing immediately after the defeat of the Great [French] Revolution, Fourier was inevitably inclined toward peaceful solutions. He insisted upon the necessity of recognising the principle of association between Capital, Labour, and Talent. Accordingly, the value of each product procured in the phalanx was to be divided into three parts, one of which (half or seven-twelfths) would remunerate Labour, another (three-twelfths) would go to Capital, and the third (two or three-twelfths) to Talent.

However, most of those who held Fourierist ideas in the International attached no importance to this aspect of his system. They understood the influence of the time when Fourier wrote. In contrast, they mostly retained the following essential features of the Fourierist teaching:

The free Community, that is to say, a small, independent, territorial agglomeration becomes the basis, the unit, of the new socialist society.

The Community is the depositary of all that is produced in the vicinity, and the intermediary for all exchanges. It also represents the association of consumers, and very probably it will also, in the majority of cases, be the unit of production (which, moreover, may also be a professional grouping, or even a federation of producer groups).

These Communities freely federate between themselves to constitute the Federation, the Region, the Nation.

Work must be rendered attractive. Without this, it would still be slavery. And as long as this is not done, no solution of the social question is possible. Work must also be, and it can be, much more productive than it is today.

To maintain harmony in a community like this, no constraint is necessary. The influence of public opinion will suffice.

As for the distribution of products, or consumption, opinions were still very divided.

Since the founding of the International, the socialist idea had made progress and, first at the Brussels Congress in 1868 and then at Basle in 1869, the International declared itself by a large majority for collective ownership of arable land, forests, railways, canals, telegraphs, etc., of the mines and also machines. Having accepted collective ownership and expropriation to achieve this, the anti-statists of the International took the name of collectivists to be clearly distinguished from the statist and centralising communism of Marx and Engels and their followers and from that of the French communists who had remained in the authoritarian tradition of Babeuf and Cabet.

We find in the pamphlet Idées sur l'organisation sociale published in 1876 by James Guillaume who himself took an active part in the propaganda for collectivism, as well as in his essential work L'Internationale: Documents et souvenirs [The International: Documents and Memories] (4 volumes, published in Paris in 1905–1910) and, finally, in his article on "Collectivisme de l'Internationale," recently written for the Encyclopédie syndicaliste, all the details of the precise meaning attributed to the word "collectivism" by the most active members of the federalist International—Varlin, Guillaume, De Paepe, Bakunin and their friends. They indicated by this term "Collectivism" a non-authoritarian, federalist or anarchist, Communism. By calling themselves collectivists, they affirmed themselves above all anti-authoritarian: they did not want to prejudge the form that consumption would take in a society that had accomplished expropriation. The key was, for them, not to claim to lock society into a rigid framework: they wanted to reserve for the advanced groups the greatest possible latitude on this point.

Unfortunately, the ideas raised in the International on collective property had not yet had time to spread amongst the working masses when the Franco-Prussian war broke out just ten months after the Basle Congress. This meant that no serious attempt in this direction was made during the Paris Commune. And after the crushing of France and the Commune, the federalist International had to concentrate all its efforts on maintaining its fundamental idea—the anti-authoritarian organisation of the workers forces for the purpose of the direct struggle of Labour against Capital to achieve the social revolution. Inevitably, questions about the future had to be neglected and if the idea of collectivism, understood as anarchist-communism, continued to be propagated by a few, it clashed, on the one hand, with the Statist-collectivist concepts developed by the Marxists once they began to abandon the ideas of the Communist Manifesto and, on the other, with the authoritarian-communism of the Blanquists and to the widespread prejudices against communism in general that had been established in the working masses of the Latin countries since 1848, under the influence of the powerful critique of authoritarian-communism which had been made by Proudhon. This

resistance was so strong that in Spain, for example, where the federalist International was in close relations with a vast federation of workers trade unions, they interpreted collectivism then and much later as a simple affirmation of collective ownership and they added “and anarchy” (anarquía y colectivismo) to affirm the anti-statist idea without prejudging the mode of consumption—communist or otherwise—that would be accepted by each separate group of producers and consumers.

Finally, as regards the means of passing from the present society to a socialist society, the workers of the International attached no importance to what Fourier had said. They felt that a revolutionary situation was developing, and they saw coming a deeper and broader revolution than even that of 1848. And then, they said, they would do everything in their power to dispossess, without waiting for the orders of the government, Capital of the monopolies which it had appropriated.

The Impetus Given by the Commune—Bakunin

From the quick overview given in the preceding chapters, we have seen the terrain upon which the anarchist idea was to develop within the International.

It was, as we have seen, a mixture of the ideas of centralist and authoritarian Jacobinism with the ideas of local independence and federation. Both—as we now know—had their origin in the Great French Revolution. For if the centralist ideas were descended in a direct line from the Jacobinism of 1793, those of local independent action represented, on the other hand, the legacy of the powerful and constructive revolutionary action of the sections of Paris and the Communes of 1793–1794.

It must be said, however, that the first of these two currents, the Jacobin current, was without doubt the more powerful. The bourgeois intellectuals who entered the International were very often Jacobins in spirit and the workers were subject to their influence.

It required an event of such serious significance as the Paris Commune to give a new direction to revolutionary thought amongst the working masses of Europe and America.

In July 1870 began the terrible Franco-Prussian War into which Napoleon III and his advisers threw themselves to save the Empire from imminent Republican revolution. The war brought a crushing defeat, the collapse of the Empire, the Provisional Government of Thiers and Gambetta, and the Commune of Paris [in 1871] as well as attempts of the same kind in Saint-Étienne, Narbonne and other cities in the South [of France] and, later in Spain—in Barcelona and Cartagena [during 1873].

For the International—for those, at least, who could think and learn from events—these communal uprisings were a revelation. Made under the red flag of the social revolution, which the workers in Paris defended to the death at their barricades, these uprisings indicated what should be, what would likely be in the Latin nations, the political form of the next revolution.

Not the Democratic Republic, as was thought in 1848, but THE COMMUNE—free, independent and, very probably, communist.

It goes without saying that the Paris Commune had experienced the confusion which then prevailed in minds concerning the economic and political measures that should be taken during a popular revolution to ensure its triumph. The same confusion that we have just seen in the International reigned in the Commune.

Jacobins and communalists—that is to say, governmentcentralists and federalists—were both represented in the uprising in Paris and they soon found themselves within conflict in the Commune. The most combative element was amongst the Jacobins and the Blanquists. But Blanqui was in prison and amongst the Blanquist leaders—bourgeois for the most part—there was not much left of the communist ideas of their Babouvist predecessors. The economic question, for them, was a matter that would be dealt with later, after the triumph of the Commune, and this idea having prevailed at first the popular communist view did not have the time to develop. Still less had it the time to assert itself during the short life of the Paris Commune.

Under these conditions, defeat was swift and the ferocious vengeance of the frightened bourgeois proved, once more, that the triumph of a popular Commune was materially impossible if a parallel development of conquests in the economic field does not impassion the mass of the people for the Commune.

To achieve a political revolution it is necessary to know how to carry out at the same time the economic revolution.

But at the same time, the Paris Commune provided another valuable lesson. It clarified, in the Latin nations, the ideas of revolutionary proletarians.

The free Commune—that is the political form that the socialrevolution must take. Let the whole nation, let all the neighbouring nations, be against this course of action—but once the inhabitants of a town and of a given territory have decided that they want to communalise the consumption of items necessary for the satisfaction of their needs, and the exchange of these products and their production, they must achieve that themselves, locally. And if they do, if they put their energies at the service of such a great cause, they will find in their commune a strength they would never find if they tried to bring with them the whole nation with its backward, hostile or indifferent parts. It is better to fight those openly than having to drag them behind you, like so many balls chained to the feet of the Revolution.

More than that. We were able to understand that if no central government was needed to control the free communes—if national government is rejected and if national unity is obtained by the free federation of communes—then a central municipal government becomes equally useless and noxious. The questions to be decided upon in the commune are in fact much less complicated, and the interests of citizens less varied and less contradictory, than they are within a nation. The federative principle must therefore be sufficient to establish agreement between the different producer, consumer and other groups within the commune.

The Paris Commune answers a question that had tormented every true revolutionary. Twice France had tried to achieve a revolution in the socialist sense by seeking to impose it by a central government: in 1793–1794, when it tried, after the downfall of the Girondins, to introduce

“l’égalité de fait”—real, economic equality—by means of severe legislative measures and in 1848 when it tried to bestow, through its National Assembly, a “Democratic Socialist Republic.”

And twice it failed. Now life itself showed us a new solution—the free Commune which must itself accomplish the revolution, in its own territory, at the same time as it liberates itself from the centralised State. And this new idea reinforced the ideal of ANARCHY.

We understood then that there was in Proudhon’s General Idea of the Revolution in the Nineteenth Century a deeply practical idea: the idea of Anarchy. And in the Latin countries the thought of advanced men began working in this direction.

Alas, only in the Latin countries: in France, in Spain, in Italy, in French-speaking Switzerland and in the Walloon part of Belgium. The Germans, in contrast, drew from their victory over France a completely different lesson; they came to the worship of statist centralisation. They still remained mired in the Robespierrist phase. They still worshipped the Jacobin Club such as described by (contrary to reality) the Jacobin historians.

The centralised State, hostile even to tendencies of national independence of its different parts; a strong hierarchical centralisation and a strong government—these were the conclusions drawn by German socialists and radicals. They did not even want to understand that the victory they had accomplished over France was only a victory of big battalions—of universal obligatory military service over the system of recruitment still in force in France in 1870—a victory achieved primarily over the rottenness of the Second Empire when it was already being threatened by a revolution which would have benefited all of humanity, if it had not been not prevented by the German invasion.

As such, in the Latin countries, the Paris Commune gave a boost to the idea of Anarchy. On the other hand, the authoritarian tendencies of the General Council of the International, asserting itself more and more and threatening to undermine the strength of the association, reinforced the anarchist current. Led by Marx and Engels, who found support amongst the French Blanquist refugees who fled to London after the Commune, the General Council took advantage of the powers it had been given to make a coup d’état in the International. It replaced in the programme of action of the Association the direct struggle of Labour against Capital by agitation in bourgeois parliaments.

This coup d’état killed the International but it also opened eyes. It showed even the most gullible how absurd it was to entrust their affairs to a government even if it were as democratically elected as was the General Council of the International. In this way was provoked the autonomist revolt of the Spanish, Italian, Jura, and Belgian Walloon Federations, as well as a section of the English, against the authority of the General Council.

In Michael Bakunin the anarchist tendency which was growing within the International found a powerful and inspired champion; and around Bakunin and his Jura friends gathered a small circle of young Italians and Spaniards who further developed his ideas.

Taking advantage of his vast knowledge of history and philosophy, Bakunin established the principles of modern Anarchy in a series of powerful pamphlets, newspaper articles and letters.

He boldly proclaimed the idea of the complete abolition of the State, with all its organisation, ideals and tendencies. The State had been a historical necessity in the past—an institution that developed the authority acquired by the religious caste. But now the complete destruction of the State is, in its turn, a historical necessity since the State is the negation of liberty and equality, and since it is known that it corrupts what it undertakes even when it undertakes to put into practice an idea for the general interest.

Every nation, however small it may be, every region, every commune must be absolutely free to organise itself as it sees fit, as long as it does not threaten its neighbours. "Federalism" and "autonomy" are not enough. These are just words always covering the authority of the centralised State. Complete independence of the Commune, the Federation of free Communes, and the social revolution within the Commune, that is to say trade unions [les groupements corporative] for production replacing the statist organisation of the society that exists today—that is, demonstrated Bakunin, the ideal which emerges before our civilisation from the mists of the past. The individual understands that he will be truly free only in proportion to the freedom of all others around him.

With these views, Bakunin was also an ardent propagandist of the social revolution, the imminent arrival of which most socialists then expected, and which he summoned in his letters and writings with words of fire.

XIII. Anarchy (continued)

The Anarchist Concept as it Appears Today

If, before 1848 and later on until the International, the revolt against the State, represented mainly by young bourgeois, took the character of a revolt of the individual against society and its moral conventions, henceforth, amongst the workers this revolt took a more profound character. It became the search for a form of society, free from the oppression and exploitation which currently occur with the help of the State.

International Workers' Association, in the idea of the workers who founded it, had to be, as we have seen, a vast federation of workers groups representing the seeds of a society regenerated by social revolution: a society where the current machinery of government and capitalist exploitation would disappear to make way for the new links which would arise between federations of producers and consumers.

Under these conditions, the anarchist ideal could no longer be individual: it became social.

As the workers of the two worlds [that is, Europe and America] began to know each other directly and entered into direct relations across borders, they developed a better understanding of the causes of the social problem and gained awareness of their own forces.

They foresaw that if the people regained possession of the land and if industrial workers took possession of the mills and factories and made themselves managers of production and directed them towards the production of what is necessary for life of the nation, we would achieve without difficulty an ample supply for all the needs of society. Recent progress in science and technology guaranteed this. And then the producers of different nations would know how to establish between

themselves international exchange [of products] on an equitable basis. It was obvious for those who knew at first hand the factory, mill, mine, agriculture, commerce.

At the same time, an ever increasing number of workers perceived that the State, with its hierarchy of functionaries and the weight of its historical traditions, could only delay the dawning of a new society freed from monopolies and exploitation.

Developed in the course of history to establish and maintain the monopoly of land ownership in favour of one class—which, for that reason, became the ruling class par excellence—what means can the State provide to abolish this monopoly that the working class could not find in its own strength and groups? Then perfected during the course of the nineteenth century to ensure the monopoly of industrial property, trade, and banking to new enriched classes, to which the State was supplying "arms" cheaply by stripping the land from the village communes and crushing the cultivators by tax—what advantages could the State provide for abolishing these same privileges? Could its governmental machine, developed for the creation and upholding of these privileges, now be used to abolish them? Would not the new function require new organs? And these new organs would they not have to be created by the workers themselves, in their unions, their federations, completely outside the State?

From the moment the monopolies formed and solidified by the State have ceased to exist, the State no longer has any reason for being. New forms of groups must arise once relations between men are no longer relations of exploited and exploiter. Life would be simplified as soon as the mechanism that existed to enable the rich to exploit the labour of the poor ceased to be required.

The idea of independent Communes for the territorial groupings, and vast federations of trade unions for groupings by social functions—the two interwoven and providing support to each to meet the needs of society—allowed the anarchists to conceptualise in a real, concrete, way the possible organisation of a liberated society. They had only to add groupings by personal affinities—groupings without number, infinitely varied, long-lasting or fleeting, emerging according to the needs of the moment for all possible purposes—groupings that we already see arising in today's society, outside of political and vocational groups.

These three kinds of groupings, covering each other like a network, would thus allow the satisfaction of all social needs: consumption, production and exchange, communications, sanitary arrangements, education, mutual protection against aggression, mutual aid, territorial defence; the satisfaction, finally, of scientific, artistic, literacy, entertainment needs. Everything always full of life and always ready to respond with new adaptations to the new needs and the new influences of the social and intellectual environment.

If a society of this kind developed on a territory sufficiently large and sufficiently populous enough to allow the necessary variety of tastes and needs, we would soon see that constraint by authority, whatever it may be, would be unnecessary. Unnecessary for maintaining the economic life of society, it would likewise be [unnecessary] for preventing most anti-social acts.

Indeed, the most serious obstacle to the development and retention of the existing state of moral standards, necessary for life in society, lies above all in the absence of social equality in the State.

Without equality—“without de facto equality,” as was said in 1793—it is absolutely impossible for the sense of justice to become widespread. Justice can only be egalitarian; and sentiments of equality are denied today, at every step, at every moment, in our societies stratified into classes. It takes the practice of equality for the sentiment of justice towards all to enter into customs, habits. And that is what will happen in a society of equals.

Then, the need for constraint or rather the desire to resort to constraint would no longer be felt. We would be convinced that freedom of the individual does not need to be limited, as it is today, sometimes by the fear of legal or mystical punishment, sometimes by obedience to individuals accepted as superiors, or to metaphysical entities created by fear or ignorance—which leads, in today’s society, to intellectual servitude, to the depression of personal initiative, to the lowering of moral standards, to the arresting of progress.

In an egalitarian environment man could in all confidence be guided by his own reason which, developed in this environment, would necessarily be imprinted by the sociable customs of that environment. And he could reach the full development of all his faculties—the full development of his individuality; whereas the individualism advocated today by the bourgeoisie as a way “for superior natures” to reach the full development of the human being, is merely a trick. The individualism they advocate is, on the contrary, the greatest obstacle to the development of any outstanding individuality.

Within a society that pursues individual enrichment and which, for this very reason, is condemned to poverty as a whole, the most gifted man is reduced to a bitter struggle just to obtain the means necessary to maintain his existence. As for the very small number of those who manage to conquer in addition some [of the] leisure necessary for the free development of individuality, society today only guarantees them that on one condition: to submit to the yoke of the laws and the conventions of bourgeois mediocrity; to never shake the kingdom of mediocrity by a criticism too penetrating, or by acts of revolt.

Only those who offer no threat to bourgeois society are allowed the “full development of their individuality,” those who are interesting to it without ever being dangerous to it.

Anarchists, as we have said, base their predictions of the future on the observed facts.

Indeed, when we analyse the tendencies that dominate in civilised societies since the end of the eighteenth century, we have to note that the centralist and authoritarian tendency is still very strong in bourgeois circles and amongst those workers who have received a bourgeois education and tend to become bourgeois in their turn. But the anti-authoritarian, anti-centralist and anti-militarist tendency and the idea of free agreement also emerge very strongly in labour circles as well as in the circles of the free spirits in the intellectual classes of the bourgeoisie.

Indeed, as I have shown elsewhere (Conquest of Bread, Mutual Aid) there exists today a strong tendency to form freely, outside the State and the Churches, thousands and thousands of groupings to satisfy all sorts of needs: economic (groupings for railways, workers unions, syndicates of employers, co-operation for agriculture and export, etc.), political, intellectual, artistic, educational, recreation, propaganda and so on. What was formerly portrayed as indisputably

functions of the State or the Church return today to the domain of the action of free groupings. This trend is visibly growing. It is sufficient that the breath of freedom has limited the jealous power of the Church and the State for these voluntary organisations to arise by the thousands. And we can predict that as soon as some new limitation of the power of these two ancient enemies of freedom is imposed on them, the free groupings will extend their spheres of activity further.

The future and progress are in this direction, and anarchy summarises both.

The Negation of the State

We must acknowledge that in their economic ideas, anarchists suffer the effect of the chaotic state in which all political economy is still in. As amongst the statist-socialists, we can distinguish amongst them various currents of opinion on this subject.

In agreement with those socialists who have remained socialists, the anarchists recognise that the current system of individual ownership of the land and of all that is required to produce, along with the current system of production for profit which is its consequence, are an evil; that our societies must abolish it, on pain of falling like so many ancient civilisations have already fallen.

But as to the means by which this change could be accomplished, the anarchists completely differ from all the factions of the statist-socialists in that they deny that we can find a solution to the social problem in the State-Capitalist taking ownership of production or, at least, its principle branches. The postal service or the railways in the hands of the current State, directed by the ministries appointed by Parliament [la Chambre], is not the ideal that we seek. We only see in that a new form of wage-labour and exploitation. We do not even believe that it is a path towards the abolition of wage-labour and exploitation, or even a transitional form in the evolution towards this aim.

Also, as long as socialism was understood in its wide and true sense—the abolition of the exploitation of Labour by Capital—the anarchists were, in this, in agreement with what were then the socialists. They differed only in the anti-authoritarian form of society that they wanted to see emerge from the social revolution, the coming of which both predicted and desired.

But they had to part completely with them when a large fraction, if not the majority, of the State socialists supported the idea that it was not a matter of immediately abolishing capitalist exploitation; that for our generation and for the phase of economic development we are going through today there can only be the question of mitigating exploitation, by imposing on the capitalists certain legal limitations.

To this, the anarchists could not consent. We maintain that if we want to one day achieve the abolition of capitalist exploitation we must, starting today, already direct our efforts towards its abolition. Starting today we must aim for the direct transfer of everything that is used in production—mines, factories, means of communication, and above all the means of existence of the producer—from the hands of individual Capital into those of communities of producers. Aim—and act accordingly.

Furthermore, we must take great care not to transfer these means of subsistence and production into the hands of the current bourgeois State. While the socialist political parties demand all across Europe the taking of possession of the railways, land, iron and coal mines and (in Switzerland, for example) the banks and the monopoly of [selling] alcohol by the bourgeois State, as it is today—we see in this taking possession of the common riches by the bourgeois State one of the greatest obstacles to that day when the social wealth passes into the hands of the workers, [as both] producers and consumers. We see in that the means of strengthening the capitalist, of augmenting his might against the rebel worker. This is also already seen amongst intelligent capitalists themselves. Their capital invested in railways, for example, is safer when the railways are a State property, operated in a military fashion by the State. For anyone who has a mind accustomed to reflecting on social facts as a whole there is no shadow of doubt on this point, which can be considered a social axiom: "We cannot prepare a social change without already taking the first steps in the same direction as the desired change; we are lead astray if we do not follow this path." In fact, we move away from that moment when the producers and consumers themselves will be the masters of production and exchange if we start by transferring production and exchange into the hands of parliaments, ministries, current functionaries who, inevitably, are today the instruments of big Capital, since all States depend on it.

We will not manage to destroy the monopolies created in the past by creating a new monopoly—always for the profit of the old monopolists.

Nor can we forget that the Church and the State were the political force to which the privileged classes, when they were just beginning to form, resorted to in order to become entrenched [établies] classes, armed by the law to have privileges and rights over other men; that the State is the institution that served to establish mutual insurance for the enjoyment of those rights. But, because of this very reason, neither the Church nor the State can today become the force which will be used to demolish these privileges. Neither one nor the other can be a form of the organisation that emerges when these privileges are abolished. History teaches us, on the contrary, that whenever a new economic form emerges in the life of a nation—when serfdom, for example, came to replace slavery, and later on wage-labour for serfdom—a new form of political grouping always had to develop.

Just as the Church can never be utilised to free man from his submission to ancient superstitions or to give him a new freely agreed ethics; just as the sentiments of equality, solidarity and unity of all men, which penetrate into all religions, will one day take a very different form than those that were taught by the various Churches, where they seized them to exploit them for the benefit of the clergy; likewise economic emancipation will be accomplished by smashing the old political forms represented by the State. Man will be forced to find new forms of organisation for the social functions that the State apportioned between its functionaries. And nothing will be done as long as this is not done.

Anarchy works to facilitate the blossoming of these new forms of social life. And this blossoming will take place, as it always has in the past, during great upheavals of liberation by the constructive force of the masses, aided [this time] by modern knowledge.

This is why anarchists refuse to accept the role of legislators or any other function in the State. We know that social revolution does not proceed by means of laws. For laws, even if they were passed by a Constituent Assembly under pressure from the street (and again: how would they be passed when it would be case of reconciling the most contrary interests?)—the laws, even after they were passed, are simply a pledge to work in a certain direction, an invitation to those on the ground to use their energy and their inventive, organisational, constructive spirit. But for that we must still have there on the ground forces ready and capable of transforming the phrases, the wishes of a law into the facts of real life.

This is also why a great number of anarchists, since the beginnings of the International to the present, have taken an active part in the workers organisations formed for the direct struggle of Labour against Capital. This struggle, while serving far more powerfully than any indirect action to secure some improvements in the life of the worker and opening up the eyes of the workers to the evil done to society by capitalist organisation and by the State that upholds it, this struggle also awakes in the worker thoughts concerning the forms of consumption, production and direct exchange between those concerned, without the intervention of the capitalist and the State.

With regard to the form of the remuneration of labour in a society freed from Capital and State, as we have said, opinions amongst anarchists still remain divided.

All are agreed in rejecting the new form of wage-labour which would arise if the State took possession of the means of production and exchange, as it has already taken possession of the railways, the post office, education, social security [l'assurance mutuelle], and defence of the territory. New powers, industrial powers, added to those which it [already] possesses (taxes, defence of the territory, subsidised religions, etc.) would create a new, formidable instrument of tyranny.

The majority of anarchists today thus support the communist-anarchist solution. We begin to realise that the only form of communism possible in a civilised society is the anarchist communist form. Egalitarian in its essence, communism is a negation of all authority. Furthermore, an anarchist society of some size would not be possible if it did not begin by guaranteeing for all some minimum of well-being, produced in common.

Communism and Anarchy are thus two conceptions that necessarily complement each other.

But alongside the main communist current, there continues to be a current which sees in Anarchy a rehabilitation of individualism, and we shall say a few words on this current to finish.

The Individualist Current

The individualist current seems to be a survival of the past when, the means of production not yet reaching the efficiency that science and technical progress gives them today, communism was synonymous with a common poverty and mutual subjugation.

Barely sixty years ago, a modest wellbeing and some leisure were possible, indeed, only for a very small number of people who exploited the labour of others; and this is why all those who held on to some economic independence looked with dread at the day when they could no longer belong

to the privileged minority. Indeed, it must not be forgotten that at that time Proudhon estimated the total production of France as being five cents per person per day.

However today this obstacle no longer exists. With the immense productivity of human labour that we have in agriculture as in industry (see on this Fields, Factories and Workshops), it is certain that a very high degree of wellbeing for all could easily be obtained in a few years by communist labour intelligently organised, while not asking from everyone more than four or five hours of work per day. That would leave us at least five more hours of complete leisure.

Therefore this objection to communism exists no more.

In any event, today the individualist current is divided into two main branches. There are first of all the pure individualists, in the sense of Stirner, who have recently found a support in the artistic beauty of the writings of Nietzsche. But we will not dwell on them [here]. We have already said in a previous chapter how metaphysical and remote from real life is this "assertion of the individual"; how it offends the sentiments of equality—basis of all liberation—because you cannot free yourself as long as you want to dominate someone; and how close it brings those who profess themselves "individualists" to the minorities of nobles, priests, bourgeois, functionaries, etc. who also believe themselves "superiors" to the masses, and to whom we owe State, Church, Laws, Police, Militarism, and every age-old oppression.

The other branch of the "individualist-anarchists" comprises the mutualists, in the sense of Proudhon. They seek the solution of the social problem in a free, voluntary organisation, which would introduce the exchange of goods valued in labour notes [bons de travail]. These "notes" would represent the number of hours necessary in a given industrial situation [un état donné de l'industrie] to produce a particular product, or else the number of hours given by such-and-such an individual to functions with recognised public utility.

In reality, this system is not individualist any more. It represents a compromise between communism and individualism. Individualism in the remuneration of the producer—communism in the ownership of what is used to produce.

Well, it is this same dualism that raises, in our view, an insurmountable obstacle to ensuring that the system could be introduced. It is impossible for a society to organise itself on two contradictory principles on this point: the placing in common of what was produced until a certain day, and individualism for what will be produced [after that date]: not for the production of items of luxury, for which tastes and demand vary infinitely, but even for the strictly necessary, concerning which a certain consistency of opinion is established in every society.

It should not be forgotten, either, the immense variety of machines and methods used to produce in different places in a large society and in a developing industry. This means that with such-and-such a machine a given amount of work produces two or three times more than this other machine. So, for example, in the modern weaving industry, looms are so different in their qualities that the number of looms that one man can supervise varies from three to twenty (Northrop looms). Neither should it be forgotten the differences in muscle and brain energy needed for different workers in different branches of production. And if we take these facts into consideration, one begins to

wonder whether the hour of work can ever be taken as an acceptable measure for the market exchange of products.

We can understand existing commercial exchange but we cannot comprehend a market exchange based on an evaluation—the hour of work—that is no longer commercial as soon as the labour force ceases to be treated as merchandise. The hour of work could be used to establish the equivalence of products (or rather to roughlyestimate them) only in a society which has already accepted the communist principle for most products of prime necessity.

And if, as a concession to the idea of individualist remuneration, we introduced, in addition to the "simple" hour of work, a different payment for "skilled" work, which requires training, or if you resorted to "opportunity for advancement" in the hierarchy of the officials of industry, we would thus reinstate the distinctive features of modern wage-labour, with the same vices that we know and which make us seek ways to abolish it.

However, it must not be forgotten that the ideas of the mutualists have had some success in agriculture in the United States where this system continues, it seems, to function in some organisations of farmers.

Coming close to the mutualists, there are still the American individualist-anarchists who were represented in the fifties of the nineteenth century by S.P. Andrews, by W. Greene, later on by Lysander Spooner, and who are represented today by Benjamin Tucker, who published for many years the newspaper Liberty.

Their ideas are related to Proudhon's, but also to Herbert Spencer's. They start from the assertion that the only obligatory law for the anarchist is to look after his own affairs himself; that, consequently, each individual and each group have the right to act as they wish—even to oppress all humanity, if they have the strength. If these principles, says Tucker, received a general application, they would offer no danger since the powers of each individual would be limited by the equal rights of all the others.

But to reason that way is to pay, it seems to us, too large a tribute to metaphysics and to make imaginary assumptions. To say that someone has the right to oppress all humanity, if he has the strength, and that the rights of the individual are limited by the equal rights of others, is to lapse completely into the dialectic. Furthermore, for those of us who remain in the realm of reality, it is absolutely impossible to conceive a society, or even a simple agglomeration of men doing the least of things in common, in which the affairs of each would not concern many, if not all, of the others. Still less is it possible for us to imagine a society in which the continual contact between its members would not establish an interest of each one towards the others and not render it practically impossible to act without considering the consequences of his actions for society.

This is why Tucker, like Spencer, after having made an excellent critique of the State and a vigorous defence of the rights of the individual, but also recognising individual ownership of land, comes to reconstitute the State, to prevent the individualist citizens from harming one another. It is true that Tucker only recognises that the State has the right to defend its members but this right and this function are sufficient to constitute the State, with its current rights. Indeed, if we examine

the history of the State institution, we find that it is precisely under the pretext of defending the rights of the individual that the State was constituted. Its laws, its functionaries, charged with protecting the injured individual; its hierarchy, established to ensure the enforcement of laws; its universities, created to study the sources of the law; and its church to sanctify the idea; its ranks to maintain "order," and its compulsory military service; its monopolies, finally, its vices, its tyranny—everything flows from this first admission: the protection of the rights of the individual injured by another individual.

These brief remarks explain why the systems of individualist anarchy, if they find adherents amongst the "intellectuals" of the bourgeoisie, are not encountered much in the mass of workers. Be that as it may, all recognise the importance of the criticism made by the individualist anarchist in preventing their communist colleagues lapsing into centralism and bureaucracy, and always bringing thought back to the free individual—the primary source of any free society. The tendency to relapse into the errors of the past exists only too well, we know, even amongst advanced revolutionaries.

We can therefore see that at this moment anarchist-communism is the solution which is gaining most ground amongst the workers—especially the Latin workers—who are interested in the questions of revolutionary action in a more or less near future and who lose faith in the kindness of the State.

The labour movement, which permits the workers to sense their solidarity outside the futile agitations of political parties, to gauge their forces and their capabilities in a more effective way than in the fleeting mechanism of elections, contributes greatly to preparing these [anarchist] ideas. So it is no exaggeration to predict that when serious movements commence amongst the workers of the towns and countryside attempts will be made in the anarchist direction and that those attempts will without doubt be more profound that those began by the French people in 1793 and 1794.

XIV. Some Conclusions of Anarchy

After showing the origins of Anarchy and its principles, we will now provide some examples that will allow us to better define the place occupied by our ideas in the contemporary scientific and social movement.

So, when we are spoken to about Law, with a capital letter, when we are told: "The Law is the objectification of Truth," or else: "The laws of development of the Law are the laws of development of the human spirit," or again: "The Law and Morality are identical and differ only formerly," we listen to these grandiose assertions with as little reverence as Mephistopheles did in Goethe's Faust. We know that those who wrote these phrases believed they were being profound, spent some effort of thought before arriving here [at these words]. But we also know that these thinkers were on the wrong path; and we see in their grandiose phrases unconscious attempts at generalisations made, however, on altogether insufficient bases, further obscured by words to hypnotise people.

In the past, we endeavoured to give the Law a divine origin; later on, we sought to give it a metaphysical basis; but today we can already study the origin of conceptions of the Law, and their [historical] development, just as we would study the development of weaving or how bees make honey. And, benefiting from the works produced by the anthropological school, we study social customs and conceptions of law, beginning with the most primitive savages, to follow their successive evolution in the codes of different historical periods to the present.

Thus we come to this conclusion, already mentioned on one of the previous pages: All laws, we say, had a double origin, and it is precisely this double origin and it is exactly this which distinguishes them from customs, established by [common] practice, which represent the principles of morality existing in a particular society at a particular period. Law confirms these customs: it crystallises them but at the same time it takes advantage of them to introduce, usually in a concealed form, some new institution in the interest of the minority of rulers and armed men. For example, it introduces or it sanctifies slavery, or else division into castes, or else the authority of the father in the family, or the priest or the military authority; or, finally, it smuggles in serfdom, and, later on, subjugation to the State. In this way they have always succeeded in imposing a yoke on men without them being aware of it—a yoke which they could only throw off later by bloody revolutions.

And so things go at all times, up to the present day. We see it even in current so-called labour legislation by which, alongside "protection of labour," which represents the stated aim of these laws, they quietly introduce the idea of a compulsory arbitration by the State in case of a strike (compulsory arbitration—what a contradiction!), or else they smuggle in the principle of a compulsory working day of at least so many hours. They open the door to the military working of railways in the event of a strike, they give legal approval to the dispossession of the peasants in Ireland from whom a previous law had taken the land. Or else, they introduce insurance against sickness, old age, and even unemployment and they thus give to the State the right and the duty to control every day of the worker, the right to force him never to take a day on holiday without the authorisation of the State, of the functionary.

And this will continue as long as one part of society makes laws for the whole of society, always increasing for that very reason the power of the State which constitutes the principal support of capitalism. This will continue as long as laws are made.

We understand therefore why anarchists have always, since Godwin, denied all written laws, despite the fact that, more than all the legislators, the anarchist aspires to justice, which, for them, is equivalent to equality, and is impossible without it.

When the objection is raised against us that by rejecting the Law we likewise reject by that all morality, as we do not recognise the "categorical imperative" of which Kant spoke to us—we reply that the very language of this objection is incomprehensible and absolutely foreign to us. It is as foreign and incomprehensible to us to the same degree as it would be to any naturalist who studies morality. This is why, before entering into discussion, we ask our interlocutors this question: "But, actually tell us, what do you mean by your categorical imperative? Can you not translate your assertions into a comprehensible language—as, for example, Laplace did when he found a way of

expressing the formulas of higher mathematics inwords that everyone understood? All great scientists do so; why do you not do the same?"

In fact, what do we mean when we speak of the "universal law" or "categorical imperative"?—That all men accept this idea: "Do not do to others what you do not want them to do to you"?—If it is that, then very well. Let us study (as [Francis] Hutchinson and Adam Smith have already done) where these conceptions have come from and how they have developed.

Then let us study to what degree the idea of justice implies that of equality. This is a very important question, as only those who consider others as an equal can apply the rule: "Do not do to otherswhat you do not want them to do to you." A serf-owner and a slave-merchant obviously could not recognise "the universal law" and the "categorical imperative" as regards the serf and negro, as they do not recognise them as their equal. And if our observation is correct, let us see if it is not absurd to want to instil morality while instilling ideas of inequality?

Finally, let us analyse, as [Jean-Marie] Guyau did, "self-sacrifice." And let us see what has contributed most in history to the development of moral sentiments in man—even if only the sentiments expressed in the egalitarian thought concerning his neighbour? Only after having made these three different studies can we deduce which social conditions and which institutions promise the best results for the future. Then we will learn how much religion has contributed to it? How much have economic and political inequalities established by laws? How much have law, punishment, prison? How much have the judge, the jailer, the executioner?

Let us study all this in detail, separately, and then we can fruitfully discuss morality and moralisation by the law, by the tribunal, and by the commissioner of the police. But the grand words that only serve to hide the superficiality of our half-knowledge—let us set them aside. They were, perhaps, inevitable at one time; as for being useful, it is doubtful that they had ever been that; but now, since we are in a position to approach the study of the most difficult social questions in the same manner as that of the gardener and the botanist studying the most favourable conditions for the growth of a plant—let us do so!

The same applies for economic questions. So, when an economist comes and says to us: "In an absolutely open market the value of goods is measured by the quantity of work socially necessary to produce those goods" (see Ricardo, Proudhon, Marx, and so many others), we do not accept this assertion as an article of faith for the reason that it was stated by a particular authority, or because it seems "devilishly socialist" to say that labour is the true measure of market values. "It is possible," we say, "that it is true. But do you not notice that, in making this assertion, you maintain for that very reason that the value and the quantity of necessary labour are proportional, just as the velocity of a falling body is proportional to the number of seconds that the fall lasts? You thus affirm a certain quantitative relationship between these two quantities; so—did you make measurements, quantitatively measured observations, which ALONE could have confirmed your assertion concerning the quantities?"

"To say that in general exchange value grows if the amount of necessary labour is greater, you can do that. This is what Adam Smith had initially concluded. But to say that therefore these quantities are proportional, that one is the measure of the other—that is making a gross error. As gross as to

say, for example, that the amount of rain that will fall tomorrow will be proportional to the amount of millimetres that the barometer has fallen below the average established for this place and this season. The first person to notice that there was a certain correlation between the low level of the barometer and the amount of rain falling; he who first recognised that a stone falling from a great height acquires a greater velocity than another stone which fell only a metre in height—these made scientific discoveries (this is what, indeed, Admin Smith did for value). But the man who would come after them to assert that the quantity of rain fallen is measured by the quantity by which the barometer has fallen below its average, or else that the distance traversed by a falling stone is proportional to the duration of its fall and is measured by it—this person would be talking nonsense. It would prove moreover that the method of scientific research is absolutely foreign to him and that his work would not be scientific—even if it is full of words borrowed from the jargon of the sciences."

Note, moreover, that if we used as an excuse our lack of precise data to establish by exact measurements the value of such-and-such commodity and the quantity of labour necessary to produce it, this would be no excuse at all. We know in the exact sciences thousands of similar cases—of correlations in which we see that two quantities depend on each other and if one of them grows so does the other. Thus, for example, the rate of growth of a plant depends, amongst other things, on the quantity of heat and light received by the plant; or else, the recoil of a canon increases when we increase the quantity of powder burnt in the charge.

But which scientist worthy of the name would have the absurd notion of asserting—without having measured their relationships in bulk—that consequently the speed of growth of the plant and the quantity of light received by it, or the recoil of the gun and the charge of powder that had just been burned, are proportional quantities: that one increases twice, thrice, ten times if the other increased in the same proportion—in other words, that the one is the measure of the other, as is said, since Ricardo, for value and labour?

Or else, who thereby, after having made the hypothesis, the assumption, that a relation of this kind exists between these two quantities would dare to present this hypothesis as a law? It is only economists or jurists—people who have no notion of what is meant by "law" in the natural sciences—who utter such assertions.

Generally, the relation between two quantities is extremely complex—which is also the case for value and labour. Strictly the exchange value and the quantity of labour are not proportional to one another: the one never measures the other. This is what Adam Smith had already noted. After having said that the exchange value of every article was measured by the quantity of labour necessary to produce this article, he had to add (after a study of market values) that if this were so under the regime of primitive exchange, this was no longer the case under the capitalist system. Which is completely true. The capitalist system of forced labour and exchange for profit destroys these simple relations and introduces several new factors which alter the relations between labour and exchange value. To ignore these is to no longer practice political economy. It is to confuse ideas and prevent the development of economic science.

The same remark which we have just made concerning value applies to almost all the economic assertions that pass today as established truths—especially amongst the socialists who like to be called scientific—and which are represented, with a priceless naivety, as natural laws. Not only are most of these alleged laws incorrect; but we also affirm that those who believe in them will soon discover that themselves if they only managed to understand the necessity of verifying their quantitative affirmations by quantitative research.

Moreover, all political economy appears to us anarchists in a different light than that given to it by economists—those of the bourgeois camp as well as the social-democrats. The scientific, inductive method, being absolutely foreign to them both, they by no means realise what a "law of nature" is despite their marked predilection for this expression. They do not notice that every law of nature has a conditional character. They always express themselves thusly: "If such conditions occur in nature, the results will be this or that.—If a straight line intersects another straight line so as to form equal angles on both sides at the point of intersection, the consequences will be as follows.—If only the movements which exist in interstellar space act on two bodies and if there are no other bodies acting upon them at a distance which is not infinite, then the centres of gravity of the two bodies will move towards each other at such a speed (this is the law of gravitation)."

And so on. Always an if, always a condition.

Consequently, all the so-called laws and theories of political economy are in reality only assertions having the following character: "If we accept that there is always in a given country a considerable number of people who cannot exist one month, or even fifteen days, without accepting the work conditions which the State wishes to impose upon them (in the form of taxes), or which will be offered to them by those whom the State recognises as owners of the land, the factories, the railways, etc.—such and such consequences will follow."

So far, political economy has always been an enumeration of what happens under such conditions—without enumerating and analysing the conditions themselves, without examining how these conditions act in each particular case or what maintains these conditions. Even when these conditions were mentioned somewhere, it was to forget them the next moment. But the economists did not confine themselves to this forgetfulness. They represented the facts which occur as a result of these conditions as fatal, immutable laws.

As for socialist political economy, it is true that it criticises some of these conclusions [of bourgeois economics], or else it explains certain of them differently; but it commits the same forgetfulness all the time, and in any case it has not yet marked a path that was proper to it. It remains in the old framework, it is stuck in the same ruts. The most it has done (by Marx) is to take the definitions of metaphysical and bourgeois political economy and say: "You can see that even accepting your definitions, we can prove that the capitalist exploits the worker!" Which sounds good, perhaps, in a pamphlet but it has nothing to do with science.

In general, we think that the science of political economy must be built differently. It must be treated as a natural science and it must set itself a different goal. It must occupy, in relation to human societies, a position analogous to that occupied by physiology with regard to plants and animals. It must become a physiology of society. It must set itself the aim of studying the ever-

increasing needs of society and the various means used to satisfy them. It must analyse these means to see to what extent they were formerly and are today appropriate to that end; and then—as the ultimate goal of all science is prediction, the application to practical life ([Francis] Bacon had already said this, long since)—it must study the means of better satisfying the totality of modern needs: the means of obtaining with the least expenditure of energy (with economy) the best results for humanity in general.

We can, therefore, understand why we draw conclusions so different in certain respects from those arrived at by most economists, both bourgeois and social-democratic; why we do not concede the title of "laws" to certain correlations indicated by them; why our exposition of socialism differs from theirs; and why we deduce from the study of the tendencies and directions of development which we currently observe in economic life conclusions so different from theirs as to what is desirable and possible; in other words, why we come to libertarian communism, while they arrive at statist capitalism and collectivist wage-labour [salariat collectiviste].

It may be that we are wrong and that they are in the right. It is possible. But if we wish to verify who is wrong and who is right, this cannot be done either by means of Byzantine commentaries on what a writer has said or meant or by lecturing us about the trilogy of Hegel nor, above all, by continuing the use of the dialectical method.

This can only be done by starting to study economic relations as we study the facts of the natural sciences.

By always using the same method, Anarchy also arrives at conclusions which are specifically its own with regards to the political forms of society, and especially the State. The anarchist does not let himself be cowed by metaphysical assertions such as: "The State is the affirmation of the idea of supreme Justice in Society"; or else "the State is the instrument and the bearer of Progress," or even "Without the State, no Society." True to his method, the anarchist started to study the State with exactly the same dispositions of mind as a naturalist who proposes to study the societies of ants or bees, or those of birds which nest on the shores of lakes in the regions of the North. We have seen, from the short summary which has just been given in chapters X to XII, to which conclusions we have come to in light of these studies with regard to the political forms of the past and their probable and desirable evolution in the future.

Let us just add that for our European civilisation (the civilisation of the last fifteen centuries, to which we belong) the State is a form of social life which developed only in the sixteenth century—and this under the influence of a series of causes which will be found mentioned later in the study The State: Its Historic Role. Before this period, from the fall of the Roman Empire, the State—in its Roman form—did not exist. If it exists despite everything in school history books, it is a product of the imagination of historians who wanted to trace the genealogical tree of royalty in France to the chiefs of the Merovingian bands, in Russia to Rurik, etc. In actual history, the modern State was reconstructed only upon the ruins of the Medieval cities.

In addition, the State, as a political and military power, along with modern governmental Justice, the Church, and Capitalism appear in our eyes as institutions which are impossible to separate

from each other. In history these four institutions developed while supporting and reinforcing each other.

They are bound together—not as mere coincidences. They are linked together by the bonds of cause and effect.

The State is, in short, a mutual insurance company formed by the landlord, the military, the judge, and the priest in order to assure each of them authority over the people and the exploitation of [their] poverty.

Such was the origin of the State; such was its history, such is still its essence today.

To therefore imagine the abolition of capitalism while keeping the State and with the aid of the State—which was created in order to aid the development of capitalism and always grows, and is reinforced, hand in hand with it—this is as false, in our opinion, as to want to achieve the emancipation of the workers by means of the Church or by way of Caesarism. Certainly, there were many dreamers in the thirties, forties and even fifties of the nineteenth century who dreamt of a socialist caesarism: the tradition has held on since Babeuf until the present. But to feed these same illusions when we have entered the twentieth century is really too naïve.

A new form of political organisation must necessarily correspond to a new form of economic organisation; and require a new form of political structure; and, whether the change is made abruptly by a revolution or slowly by way of a gradual evolution, the two changes, political and economic, must go together, hand in hand. Each step towards economic emancipation, each real victory over Capital, will also be a victory over Authority: a step towards political liberation: it will be liberation from the yoke of the State by the free agreement—territorial, professional and functional—of all the interested parties.

XV. The Means of Action

It is obvious that if Anarchy thus parts equally from academic science as well as from its social-democratic colleagues in its methods of investigation and in its fundamental principles, it must also part from these by its means of action.

With our judgements on Right, Law and the State, we cannot see a guarantee of progress and even less a path towards the social revolution in an ever greater submission of the individual to the State. To say, as is often said by superficial critics of [current] society, that modern capitalism has its origin in “the anarchy of production,” [91] in “the doctrine of non-intervention of the State,” which, so they claim, has practiced laissez faire and laissez passerand let it pass, [or] repeat it, we cannot since we know that it is not true. We are fully aware that governments, while giving full liberty to the capitalists to enrich themselves by the labour of workers reduced to misery, have never, nowhere during the course of the nineteenth century given to workers the liberty to “do as they wished.” Never, nowhere, has the formula “laissez faire, laissez passer” been applied—why say the contrary?

In France, even under the terrible “revolutionary”—that is to say Jacobin—Convention, proclaimed death for strikes, for coalitions, and the formation of a State within the State! Must we talk, after that, of the Empire, the restored royalty, or even of the bourgeois republic?

In England, in 1813, they still hanged for striking and in 1834 workers were transported to Australia for having dared to form [a branch of] the Union of Trades of Robert Owen. In the sixties strikers were still sent to hard labour under the well-known pretext of defending liberty of labour. And even now, in 1903, in England a trade union had to pay a Company 1,275,000 francs in damages from dissuading workers from going into the factory during a strike (for picketing). What about France, where permission to form a trade union was only granted in 1884, after the anarchist agitation in Lyon and that of the miners in Montceau-les-Mines! What about Belgium, Switzerland (remember the Airolo massacre!), and above all Germany and Russia?

Furthermore, we need to remember how every State reduces the worker of the fields and towns to misery by means of taxes and by the monopolies it creates, in order to deliver him bound hand and foot to the manufacturer! Is it necessary to recount how, in England, they once curbed, and they further curb, the communal possession of the land by allowing the local lord (formally he was nothing but a judge: never a landowner) to enclose the lands of the community and to seize it for themselves for that very reason? Or else recount how, at this very moment, the land is being strippedfrom the Russian peasant communes by the government of Nicholas II?

Finally, is it necessary to speak of how all States today, without exception, establish immense monopolies of all kinds, not to mention those monopolies created in conquered lands such as Egypt, Tonkin, or the Transvaal? What use is there in speaking of primitive accumulation, as Marx did, as if it were a thing of the past when every year new monopolies are established by every parliament in the sphere of railways, trams, gas, water pipes, electricity, schools, etc., etc., without end!

In short, never, in any State, neither for one year nor even for an hour, has the system of laissez-faire existed. The State has always been at all times, and still is, the support, the buttress and also the creator, direct and indirect, of capital. Therefore, if it is permissible for bourgeois economists to assert that the system of “non-intervention” exists—since they seek to prove that the misery of the masses is a law of nature—how can socialists speak this language to the workers! The freedom to resist exploitation, thus far, has never existed anywhere. It was necessary, everywhere, to conquer it step by step, by countless struggles and sacrifices. “Non-intervention” and even more than “non-intervention”—aid, support, protection—has always existed only for the exploiters.

And it could not be otherwise.

Socialism, we have said, in whatever form it may arise during the events leading up to communism will therefore have to find its own form of political relations. It cannot utilise the old political forms, [just] as it cannot utilise religious hierarchy and its teachings, or imperial or dictatorial forms and their theories. In one way or another it will have to become more popular, closer to the assembly [forum], than representative government. It must be less dependent on representation and become more self-government, more government of each by themselves. This is what the

proletariat of Paris sought to do in 1871; it is what the Sections of the Paris Commune and many smaller towns attempted to do in 1793–1794.

When we observe the actual political life of France and England, as well as in the United States, we see germinating there a very distinct tendency to establish independent, but linked together, urban and rural municipalities for thousands and thousands of diverse needs by federative treaties, each concluded for a particular, specific, purpose. And these municipalities tend more and more to become producers of the commodities required to satisfy the needs of all their inhabitants. To communal trams are added communal water, often brought from afar by several federated towns, gas, light, power for factories, even communal coal mines, communal dairies for pure milk, the communal herd of goats for those suffering from tuberculosis (at Torquay), communal hot water mains, the communal kitchen garden, etc., etc.

Of course, it is not the Emperor of Germany nor the Jacobins [recently] installed in power who govern Switzerland who work towards that goal: these, eyes turned towards the past, are seeking instead to centralise everything in the hands of the State and to destroy any trace of territorial or functional independence.

It is the progressive part of European and American societies that must be considered. And in these we find a marked tendency to organise outside the State and to replace it more and more by appropriating, firstly, the functions which the State continues, it is true, to regard as its own but which it never knew how to satisfy properly.

The mission of the Church was to keep the people in an intellectual slavery. The mission of the State was to keep it, half starved, in economic slavery. We are now trying to shake off both yokes.

Knowing this, we cannot consider every increasing submission to the State as a guarantee of progress. Institutions do not change their character at the whim of theorists. Hence we seek progress in the liberation, as complete as possible, of the individual: in the broadest possible development of the initiative of the individual and of the group and, at the same time, in the limitation of the powers of the State—not in their extension.

We represent the way forward as a series of steps—firstly, towards the abolition of the governmental authority which has imposed itself upon society, especially in the sixteenth century, and has only continued to expend its powers since; and then—towards the widest possible development of the element of agreement, of temporary contract, at the same time as the independence of all groupings which will be created for a given goal and which, by their federations, will end by encompassing all society. By this we represent the structure of society as something which is never definitely constituted but which is always filled with life and, consequently, always changing form according to the needs of each moment.

This way of conceiving progress, as well as our conception of what is desirable for the future (everything that will contribute to increasing the amount of happiness of all) necessarily leads us to develop for the struggle our own tactics, which consist in developing the greatest possible amount of individual initiative in each group and in each individual—unity in action being

obtained by unity of purpose and by the force of persuasion which every idea possesses when it has been freely expressed, seriously discussed and found just.

This perspective puts its stamp on all the tactics of the anarchists and on the inner life of each of their groups.

We affirm, then, that to work for the advent of a State-Capitalism, centralised in the hands of a government which has therefore become omnipotent, is to work against the already pronounced current of progress which seeks the new forms of organisation of society outside of the State.

We see in the incapacity of the statist socialist to understand the true historical problem of socialism a gross error of judgement—a survival of absolutist and religious prejudices, and we fight against it. To tell the workers that they will be able to introduce the socialist system while retaining the machine of the State and only changing the men in power; to prevent, instead of aiding, the mind of the workers progressing towards the search for new forms of lifethat would be their own—that is in our eyes a historic mistake which borders on the criminal.

Finally, since we are a revolutionary party, we above all seek the genesis and the development of previous revolutions and try to rid history of the false statist interpretations which have always been given to it. In the histories of the different revolutions, written to this day, we do not yet see the people, we do not learn anything about the genesis of the revolution. The phrases to which they are wont to repeat in the introduction [of such a book] on the desperate state of the people on the eve of its uprising do not even tell us how, in the midst of this despair, the hope of a possible improvement, of new times, emerged? Where did the spirit of revolt come from? That is why, after reading these histories, we refer to the primary sources in order to find some information on the progress of the wakening within the people as well as the part of the people in the revolutions.

Thus, for example, we understand the Great French Revolution quite differently from how Louis Blanc saw it, who represented it mainly as a great political movement carried out by the Jacobin Club. We see in it, above all, a great popular movement, and we especially note the role of the rural peasant movement ("every village had its Robespierre," as was rightly said by the Abbot Grégoire, the spokesman of the Committee on the Jacquerie, to the historian Schlosser), a movement whose aim was the abolition of the survivals of feudal servitude and the regaining by the peasants of the lands taken by all kinds of vultures from the village communes—in which, it must be noted in passing, the peasants succeeded, especially in the East of France.

A revolutionary situation having been created by the uprisings of the peasants which continued for four years, there also developed at the same time, especially in the towns, a tendency towards communist equality; and, in addition, we see the growing power of the bourgeoisie which shrewdly worked to establish its authority in the place of the authority of the royalty and nobility which it demolished systematically. To this end the bourgeois struggled bitterly, cruelly if need be, in order to establish a powerful, centralised State, which absorbed everything and secured their property (in part, on the assets they had just acquired during the Revolution) along with their full freedom to exploit the poor and speculate on the national wealth, without any legal restriction.

Indeed, the bourgeoisie obtained this authority, this right of exploitation, this one-sided laissez-faire; and it created its political form to maintain it—representative government in the centralised State.

In this statist centralisation, created by the Jacobins, Napoleon I found the ground already prepared for the Empire.

Similarly, fifty years later, Napoleon III found in the dreams of a centralised democratic republic which developed in France after [the revolution of] 1848 the ready-made elements for the Second Empire. And France still suffers from this centralised force, which for seventy years killed all local life, every endeavour, whether local, whether outside the capabilities of the State (professional, union, private association, commune, etc. endeavours). The first attempt to break this State yoke—an attempt which opened up a new historical era—was only made in 1871 by the Parisian proletariat.

We go even further. We affirm that as long as the statist socialists do not abandon their dream of socialising the instruments of labour in the hands of a centralised State, the inevitable result of their attempts at State Capitalism and the socialist State will be the failure of their dreams and military dictatorship.

Without entering here into the analysis of the various revolutionary movements, which confirm our perspective, it is sufficient to say that we understand the future social revolution not as a Jacobin dictatorship, nor as a transformation of social institutions accomplished by a Convention, a parliament, or a dictator. Never has a revolution been made in this way; and if the actual workers' uprising took this form, it would be doomed to perish without having a lasting result.

On the contrary, we understand the revolution as a widely spread popular movement and during which, in every town and village in the region seized by the insurrectionary spirit, the popular masses set themselves to the work of reconstructing society. The people—the peasants and the town workers—must themselves begin the constructive work, building, on more or less broadly communist principles, without waiting for blueprints and orders from above. Above all, they must arrange to feed and house everyone and them to promptly produce what is needed to feed, house, and clothe everyone.

As for government, whether it be established by force or by election, whether it be the "dictatorship of the proletariat" as was said in the [eighteen-] forties in France and as is still said in Germany, or else whether it be a "provisional government," acclaimed or elected, or a "convention"—we do not place any hope in this government. We say in advance that it cannot do anything.

Not because that is our personal preference but because all history is there to show us that whenever men are thrown into a government by the revolutionary upsurge they have never lived up to their position. They cannot. Because isolated men [in the State]—be they ever-so intelligent and ever-so devoted—are sure to fail in the task of reconstructing society on new principles. This requires the collective spirit of the masses working on concrete things: the ploughed field, the inhabited house, the running factory, the railway, the carriages of such-and-such line, the steamboat.

Isolated men can discover the legal expression, the phrase, for a destruction of the old social forms when this destruction is in the process of being accomplished. At the most, they can widen this destructive work a little and extend over a whole territory what is being done in only a part of the country. But to impose the destruction by a law, that is absolutely impossible—as it was proven, amongst other things, by all the history of the revolution of 1789–1794.

As for the new forms of life which will begin to germinate in a revolution on the ruins of the previous forms—no government will ever be able to find their expression as long as these forms do not establish themselves in the work of reconstruction by the masses being done at a thousand points simultaneously. Who had guessed, who could have guessed, before 1789, the part played by the municipalities, the commune of Paris and its section in the revolutionary events of 1789–1794. We cannot legislate the future. All that can be done is foresee the essential tendencies and clear the way for them. That is what we are trying to do.

It is evident that by understanding the problem of the social revolution in this way, Anarchy cannot let itself be seduced by a programme that makes its aim: "The conquest of power in the current State."

We know that this conquest is not possible by peaceful means. The bourgeoisie will not give up its power without a struggle. It will not let itself be dispossessed without resisting. But as the socialists become a party of government and share power with the bourgeoisie, their socialism will necessarily fade: this is what has already happened. Otherwise the bourgeoisie, who are much more powerful numerically and intellectually than is suggested in the socialist press, would not recognise their right to share its power.

In addition, we also know that if an insurrection succeeded in giving France, or England, or Germany a provisional socialist government, it, without the spontaneous constructive activity of the people, would be absolutely powerless and would soon become a hindrance to the Revolution. It would be the stepping-stone for a dictator, representing the reaction.

In studying the preparatory periods of revolutions, we come to the conclusion that no revolution has had its origin in the resistance or attack of a parliament, or any other representative assembly. All revolutions began within the people. And no revolution has ever appeared, armed from head to foot like Minerva rising from the head of Jupiter. All had, in addition to their period of incubation, their period of evolution during which the popular masses, after having formulated very modest demands at the beginning, were penetrated little by little, and even rather slowly, by an increasingly revolutionary spirit. They grew bolder, they grew more daring, they gained confidence and, emerging from their lethargy of despair, gradually widened their programme. It took time for their "humble remonstrances" at the beginning to become revolutionary demands.

In fact, it took France four years, from 1789 to 1793, to just create a republican minority powerful enough to impose itself.

As to the period of incubation, this is how we understand it: First, isolated individuals, profoundly disgusted by what they saw around them, rebelled separately. Many of them perished, without any visible result; but the indifference of society was shaken by these lost sentinels.

The most satisfied and narrow-minded were forced to ask: “For what cause do these youths, honest and full of strength, give their lives?” It was no longer possible to remain indifferent; it was necessary to declare for or against. The mind worked.

Little by little, small groups of men were also penetrated by the same spirit of revolt. They also rebelled, sometimes with hope of a partial success—that of winning, for example, a strike and obtaining bread for their children or of getting rid of some hated functionary—but also very often without any hope of success: rebelled simply because it was impossible for them to wait any longer. Not one, two, or ten such revolts, but hundreds of insurrections preceded each Revolution. There is a limit to all patience. We see it so well in the United States at this moment.

The pacific abolition of serfdom in Russia is sometimes cited; but it is forgotten, or it is unknown, that a long series of peasant insurrections preceded and brought about this emancipation. These disturbances began in the fifties—perhaps as an echo of 1848, or the disturbances of 1846 in Galicia —and every year they spread further in Russia, while becoming increasingly serious and taking a bitter aspect hitherto unknown. This lasted until 1857, when Alexander II at last issued his letter to the nobility of the Lithuanian provinces containing a promise of liberation to the serfs. The words of Herzen: “Better to give freedom from above than wait for it to come from below”—words repeated by Alexander II before the slaver nobility of Moscow in 1856—were no empty threat: they reflected the reality [of the situation].

It was the same, even more so, at the approach of every revolution. It may also be said, as a general rule, that the character of each revolution was determined by the character and purpose of the insurrections that preceded it. More than that. It can be established as a historical fact that no serious political revolution could be accomplished if—the revolution already begun—it did not continue in a great number of local insurrections and if the unrest did not take on the character of insurrections, instead of taking that of individual [acts of] revenge, as was the case in Russia during the years 1906 and 1907.

Consequently, to expect that a social revolution will come without being preceded by insurrections that determine the spirit of the coming revolution is to cherish an absurd, childish hope. Seeking to prevent these insurrections by saying that a general uprising is being prepared is already criminal. But to seek to persuade workers that they will obtain all the benefits of a social revolution by limiting themselves to electoral agitation and spew all their bile upon acts of partial insurrection when they occur in historically revolutionary nations is to be yourself an obstacle to the spirit of revolution and all progress—an obstacle just as baneful as the Christian church has always been.

XVI. Conclusion

Without going into further developments of the principles of Anarchy and the anarchist programme of action—what has been said will probably suffice to indicate the place of Anarchy amidst the current knowledge of humanity.

Anarchy represents an attempt to apply the generalisations obtained by the inductive method of the natural sciences to the evaluation of human institutions. It is also an attempt to predict, on the

basis of that evaluation, the march of humanity towards liberty, equality, and fraternity, in order to obtain the greatest possible sum of happiness for each of the units in human societies.

Anarchy is the inevitable result of the intellectual movement in the natural sciences which began towards the end of the eighteenth century, was retarded by the triumphant reaction in Europe after the defeat of the French Revolution, and recommenced anew in the full blossoming of its forces since the end of the [eighteen-]fifties. The roots of Anarchy are in the naturalist philosophy of the eighteenth century. But it could not acquire its full foundations until the revival of science which took place at the beginning of the second half of the nineteenth century and which gave new life to the study of institutions and human societies on a naturalist basis.

The purported "scientific laws" with which the German metaphysicians of the 1820s and 1830s were content find no place in the anarchist conception. It recognises no other method of research than the scientific method. And it applies this method to all the sciences generally known under the name of the humanitarian [or social] sciences.

Taking advantage of this method, as well as of recent research made under the impetus of this method, Anarchy attempts to construct all the sciences concerning man, and revise current notions about law, justice, etc. on the data already obtained by ethnological research and extending them further. Building on the work of its predecessors in the eighteenth century, Anarchy has sided with the individual against the State; with society against the authority which, by virtue of historical conditions, dominates it. Benefiting from the historical materials accumulated by modern science, Anarchy has demonstrated that State authority, whose oppression grows more and more in our days, is in reality only a harmful and unnecessary superstructure which, for us Europeans, only dates from the fifteenth and sixteenth centuries: a superstructure built in the interests of capitalism and which was already, in antiquity, the cause of the fall of Rome and Greece, as well as all the other centres of civilisation in the East and in Egypt.

The authority which was formed in the course of history to unite in a common interest lord, judge, soldier, and priest, and which during the whole course of history was an obstacle to the attempts of man to create for himself a life somewhat secure and free—this authority cannot become a weapon of liberation, no more than caesarism, imperialism or the Church can become instruments of social revolution.

In political economy, Anarchy has come to the conclusion that the actual evil lies not in that the capitalist appropriates the "surplus value" or net profit but in the fact that this net profit or surplus value is possible. The "surplus-value" exists only because millions of men do not have enough to eat unless they sell their strength and intellect at a price that will make the net profit or surplus value possible. This is why we consider that in political economy it is necessary above all to study the subject of consumption and that in a Revolution the first duty will be to remodel consumption, so that shelter, food, and clothing are guaranteed for all. Our forefathers of 1793–1794 understood this well.

As for "production," it should be organised so that the primary needs of all society should be satisfied from the outset and as quickly as possible. This is also why Anarchy cannot see in the coming revolution a mere substitution of "labour notes" for gold coins or a replacement of the

current capitalists by the State [as sole] capitalist. It sees this as a first step towards libertarian Communism, [communism] without the State.

Is Anarchy right in its conclusions? The answer will be given to us by, on the one hand, a scientific criticism of its foundations and, on the other, practical life. But there is one point on which without doubt Anarchy is absolutely in the right. It is when it considers the study of social institutions as a matter of the natural sciences; when it parts forever with metaphysics; and when it takes for its method of reasoning the method that has served to establish all modern science and the materialist philosophy of our time. It is this [method] that will make the errors into which anarchists may have fallen in their conclusions all the more easily recognised. But to verify our conclusions is only possible by the scientific, inductive-deductive, method—the method on which every science is built and that developed every scientific conception of the universe.

In the following studies, on anarchist-communism and the historical development of the State and its current form, the reader will be able to see what we base our negative attitude towards the State on, and what are the ideas that make us conceive of the possibility of a society which, whilst accepting communism as its basis for economic organisation, at the same time would renounce the organisation of hierarchical centralisation which is termed "State."

Beyond Humanism (but not without it?) Reflections on the Matter of Black Life - K.D. Wilson

August 2014. A veil had once hung over the eyes of Amerikkka but the vigils in Ferguson tore it away, shaking Rome right in its noxious belly. Michael Brown had been shot cold dead, and left to the concrete like strange litter, calling forth the mighty stride of an eradicatory process that loped across those Missouri streets like a flood to lift a standard against the devil's 'post-racial' parseltongue and other Obama-era neoliberal forms of trickery. New Afrikan communities was tired, been tired; the grip of any notion that we were at last being treated as though 'created equal' was loosened. And, a rallying cry broke forth as we more deeply decided the kkkolonizer's representationalism could game us no longer. It was time we demanded that our lives be made to matter. We disagreed on exactly how we would secure the matter of Black life, though, even if we knew there at least was/could/should be something to ground our value in. The smokescreens of that blue party which Malcolm correctly identified as foxes were utter uselessness to us now, and only by us acting for ourselves again could we advance Black community.

This self-activity, by which Black people would struggle to make sure our lives matter, found its basis in the idea that we were 'Man.' That's how the nationalists brought it to me at least, in whose circuits I began to travel and mobilize in after watching Dorian Johnson cry out about his beloved friend's death in front of those lifeless, listless news screens. "I am a man," says the anti-racism I was raised on, which is to say that "I am human." And therefore, since my matter has humanity as its axiological reference point, the basis of my life's value, then I have/deserve the same experience of 'unalienable' rights as any other person. Demanding and attaining those rights was to be led by us, though — the people — for governance and the greedy capitalists would never accord them to us. We would unite with other common folk similarly dispossessed of their humanity, instead, and

find solidarity with one another in our own communities' respective quests for self re-humanization.

That is, unless these other so-called 'allies' were too invested in seeing us as non-human to allow us equal participation in their humanist projects. Then, of course, as we begin obstructing highways, flooding phone lines, burning flags, holding sit-ins, and teetering toward more escalated and organized forms of action, the people we should be solidary with would prove themselves to be traitors or enemies, like they was gunning for us too. This was especially true for those of us who were disabled or queer whilst navigating our 'Hamitic' flesh. Even the revolutionaries, radicals, the socialists, anarchists, communists — they too seemed keen on denying Black people our equal share in the fold of 'humanity' and in preventing us from doing what we needed to make our lives matter. And so, some decided, since the basis of our value seemed to be always at the exclusion of non-human lives, and Black people continued to be dehumanized, perhaps it was time to abandon 'humanization' as a project and give up on partaking in whatever projects were said to 'make' our humanity fulfilled or secured. The Black 'non-humanists' (as I call them) often turned to the work of critical theory (especially critical theorizing within Black Studies, queer studies, disability studies, animal studies, object studies, and ecocriticism) to further defend this new direction in thought. Their concern was with tracing the ways that 'humanism' fails Black people.

Humanism can be understood as the belief that our species has charge over our own destinies (as opposed to some cosmic force doing that), and the related belief that members of our species have the capacity to transform the conditions which might prevent such self-determination (again, precisely because the hindrances are not cosmic). It is important to note that there are different kinds of humanism: the mainstream ones either tie self-determination and the mattering of life to bourgeois/liberalism (the Westphalian state and capitalism) or to proletarian revolution (socialism or communism). I was raised on anti-colonial humanism, like many Black people, which ties self-determination and the mattering of our life to expropriation of resources and development of autonomy for the Third and Fourth Worlds (anti-colonial leftism). Skeptics of humanism, however, argue that humanism is unable to account for the reality of non-humans and those treated as nonhuman.

Primarily trained in the academic spheres of cultural and discursive analysis (with aspects of phenomenology and psychoanalysis, among others), so called Black critical non-humanist theory thus focuses instead on giving language to what its proponents see as already existing sources of Black rebellion and resistance that, on sheer virtue of our history as enslaved and dehumanized people, is said to have better implications for the fate of non-human Matters (and those treated as such) in ways that "humanism" cannot. This attention to the activity and 'vantage point' of 'the Slave' is not necessarily aimed at a particular political proposition or conclusion. For that reason, the labels used to describe this line of inquiry simply connect this slave-centered way of thinking about Blackness to some affective response or philosophical posture (and not so much an ideology). "Afropessimism" is the most popular of these labels ascribed to critical non-humanist studies of Blackness. "Black Optimism" is a close second favorite label. Frank B. Wilderson is the father of Afropessimism, while Fred Moten is Black Optimism's progenitor. Other names you might find in the 'non-humanist' side of Black critical theory and cultural analysis would be Calvin

Warren, Saidiya Hartman, Jared Sexton, and Hortense Spillers, although not all of them identify with either Afropessimism or Black Optimism (even to the point of outright rejecting the labels and/or the implications of these lines of inquiry).

In its everyday sense, the word "pessimism" is a "glass half empty" type mindset, where the attention is negative. Such negativity is an affective (or emotional) one, but it's also more about where the attention goes: what is absent from the container. Water is gone from the glass. Now, imagine if this focus was a critical disposition or angle toward life. With Afro-Pessimism and Wilderson's work, we find the focus/attention of analysis is on the 'negative' effects of Black struggle, for example the 'loss' of our original ethnolinguistic ties due to slavery. The loss is taken as a sufficient/vital enough source of or motivation for rebellion, such that we are then required to seek our freedom not in 'progress' but instead in things like the forced subversion that is the idea of the 'nigger.' The 'nigger' and what it means has been rendered opposite of every definition of 'human' grounded by the modern world's socio-economic and politico-cultural matters. Afro-Pessimism says that analyzing and embracing this experience of Black negation from the 'human' is the only way to bring about the drive within Black people to 'destroy the world' system altogether and end the capitalist/colonial violence which exploits non-humans and those treated as such. Humanistic projects, on the other hand, are said to reinvest the people into the global colonial/capitalist system. They are seen as a bid to reclaim the structures that ground 'human' life, in violent contradistinction to non-humans. For this reason, Afropessimists see humanist politics and persuasions as untenable or unavailable to Black people.

Now, "optimism" in the everyday sense of the word is a "glass half full" type mindset, where the attention is positive. Such positivity is an affective (or emotional) one, but it's also more about where the attention goes: what is there in the container. Water remains in the glass. Now, imagine if this focus was a critical disposition or angle toward life. With Black Optimism and Moten's work, we find the focus/attention of analysis is on the 'positive' products of Black struggle, for example our creation of 'new' ethnolinguistic ties across national lines due to slavery. These 'innovations' are taken as sufficient/vital enough source of or motivation for resistance, such that we are then required to seek freedom not in 'progress' but instead in things like the forced survival techniques we had to take on amidst dehumanization. This survivorhood has persisted and existed outside of every definition of 'human' grounded by the modern world's socio-economic and politico-cultural matters. Black Optimism says that analyzing and embracing the experience of Black affirmation despite the 'human' is the only way to bring about the drive within Black people to 'make way out of no way' in the modern world system, and thus end any further capitalist/colonial violence that exploits non-humans and those treated as such. Humanistic projects, on the other hand, are said to reinvest the people into the global colonial/capitalist system. They are seen as a bid to reclaim the structures that ground 'human' life, in violent contradistinction to non-humans. For this reason, Black Optimists see humanist politics and persuasions as useless or unnecessary for Black people.

Afropessimism and Black Optimism blew up during the heyday of the Black Lives Matter moment as questions of Black humanity and whether it mattered became pushed to the fore. They brought their version of critical non-humanist theories to many of our political attention, on the ground in

organizing spaces, on social media, and in the academy. For many, they provided an analysis of the failures of multiculturalism in the 'postracial' age and an explanation for neocolonialism in the 'postcolonial' age as well as an understanding of Western assault on socialist movements worldwide (along with the coloniality of many self-described socialisms). All were linked back to slavery and anti-blackness, where Afropessimism and Black Optimism presented the current aftermath of decolonization movements from the late 20th century as evidence that these struggles had been failed attempts to integrate into humanism. Afropessimism and Black Optimism were thus taken as clarifications about the conditions that made Ferguson possible.

But, for many others, Afropessimism and Black Optimism in particular (and critical non-humanist Black Studies in general) were both, if anything, confusing at best and counter-revolutionary at worst. I was one of those folk. My personal issue wasn't so much with the Western philosophical orientation or the dense metatheoretical and theoretical nature of them both, although I can admit these elements certainly made them off-putting and frustrating to me (and still do). My major issue with them was that I had seen people use these lines of inquiry, especially Afropessimism, to make a wholesale rejection of decolonization. In these instances, the self determination of the colonized masses, the reclamation and expropriation of stolen resources from the First World by the Third (and Fourth) World — this was being called 'anti-black' and as necessarily reliant on violent and exploitative antagonism against non-humans (or those marked as such). And as someone who had cut my political teeth on Black nationalism and Pan Afrikanism, I couldn't get with that position. I wasn't thoroughly opposed to critiques of humanism, though, in the way that those more aligned with my political tendency often were. A number of intense and volatile debates exploded on part of the Black Left in response to the conclusions being drawn from Afropessimism in particular. But, because I was open to critiques of humanism, I decided to take an extended foray into the Afro-Pessimist and Black Optimist world, hoping to see if there was perhaps any legitimacy to their conclusion about decolonization.

I was thrown off by the canon, even after reading through alot of it. I tried to focus instead on the content of their analysis, and identify exactly why much of the Black revolutionary world has an issue with the two lines of inquiry. Time and again the best way I could tie them together why they were so controversial for many revolutionaries was that, according to my understanding:

Afropessimism teaches that people lack the capacity to meaningfully alter our external and internal realities beyond anti-black exploitation or devaluation because of an unconscious antagonism against non-humans that always manifests itself as (and comes from) our society/history making acts

Black Optimism teaches that people have no need to affirm or to try and realize any capacity to alter our conditions because to do so is always already a conscious act of violence or devaluation toward non-humans, and thus not a genuine break from the exploitative flow of human society/history.

With this takeaway in mind, it became clear to me why those defending and decrying these lines of inquiry often became so hostile with one another, or just completely didn't understand one another at all. There was a basic, often implicit presupposition embedded within anti-

colonial/socialist humanism that was being strained against by Afropessimism and Black Optimism, under the banner of 'non-humanist' critique. This assumption is the materialist one. Materialism is what emphasizes our species' capacity as living/biotic entities to alter our external and internal conditions. The application of Afropessimist and Black Optimist approaches to critical non-humanism seemed thoroughly against this premise, though, in the name of centering the 'vantage point' of an 'object' (non-human) — implying that nonhumans lack this capacity, and that seeking to utilize this capacity (or locate it in others) sustains antagonism against (or equals the devaluation of) nonhumans. Whether this anti-materialism is intentional or not, I cannot say, but what I can say is that in all my time spent trying to understand these lines of inquiry, I still very much find it problematic. But, this is not because I seek to protect humanism.

In fact, I must admit, I too share a skepticism of humanism, the same skepticism that Black critical nonhumanists seem to share. I find issue with the way when using 'human' as a reference point for how/why we should make our lives matter, find fulfillment, have value — -people often unevenly divide who is or isn't included. In my days as a Black nationalist (which is one of the major reasons I moved away from that tendency) I witnessed how appeals to our common belonging in the fold of 'Man,' though well-intended defenses of our right to self-determination, pushed out those who weren't cishet men or abled people. And, throughout the history of our movements, we have seen the way that a recourse to 'rehumanization' has failed to fully account for the way 'human' is portrayed as more deserving of liberty and value than others in the first place — a type of ideological neglect that has had detrimental consequences in our quest for autonomy, again, especially for queer and disabled Black lives.

That said my critiques of humanism do not involve a rejection of materialism. In fact, my critiques of humanism are only possible because I (try my best to) espouse materialist analysis. Materialism, in its most dedicated and principled form, is ecopolitical and not anthropocentric. Humanism in the revolutionary world bases itself on materialism, but is not the quintessential representative thereof. At the end of the day, the humanistic framing of a capacity to alter conditions and have charge over one's destiny as a 'human' thing — -this only arose as an attempt to recognize the ecological (and not cosmic/karmic) situatedness of oppressed people's basic needs, the ecological situatedness of categories like labor, the ecological situatedness of experiences like hunger. In other words, that alteration and destiny have their fulfillment in ecological Ends; and the "progression" toward those Ends is not emphasized because genuine decolonial humanists value progress as a value unto itself. Instead, it is their materialism causing them to foreground consolidating around those ecopolitical Ends, a conscious clarification that is not necessarily because of a belief that we are wholly distinct from (and thus deserving mastery over) so-called 'nature.' The demand for "full unification" with more-than-human Matter that materialism strives toward comes, instead, from a recognition that we need such progression because we are alienated from deeper earthly participation and consciousness due to our history of domination. From this angle, one finds that we only ever begin subverting and surviving because we are ecological entities struggling to more fully realize ourselves within our environment against the enkkklosures that have trapped all kinds of Matter. For this reason, socialists and anti-colonialists are able to identify capitalism and colonialism as ecocidal, and within their demands for worker ownership of the means of production or of resource expropriation by/of the Third and Fourth Worlds we find

more potential for a transformative ecopolitics than bourgeois/liberal humanism could ever allow for.

If we're returning to the 'glass half empty' or 'glass half full' idea, when our attention and responses are turned to what's "lost" or what's "present", this focus bypasses another awareness: that there is a connection and relationship between whatever the container aims to hold (the water) and the molecular, biotic, geophysical realities beyond the glass from which the water originated and to which it returns. This bypass of the materialist and ecopolitical focus for a libidinal focus on part of the Afropessimist and Black Optimist is only correct if one considers all pursuit of the natural connection/relationship between those contained and that ecological universe which was dispossessed of us to be an idealization and myth, or to be a 'meta-narrative' aimed at upholding human-centric 'ownership' of Things. Far from idealized, though, or rooted inherently in human-centrism, it is more genuinely the vantage point of the object of human consumption (if the Slave stands in for the water in the glass) to defend its capacity to alter its conditions and emphasize the ecopolitical Ends of the materialist analysis that teases out said capacity. Because, in that instance, we would attend to the water freezing over at the call of the cold and rendering cracks in the glass, or rising up out of the glass in gas form as it is summoned by the power of heat energy, winds, and sun rays into evaporation and condensation, and as it cycles through sky, sea, land, and plant as well as animal bodies in metabolic journeys. When it comes to Black liberation, therefore, my attention/focus is not primarily on the affective, philosophical mechanisms that are contained in the history of Black subversion and survival. As an Anarkata, I do recognize with Ashanti Alston how important these cultures of oppositionalism have been; I just don't put these sources of rebellion or resistance before me as more effective than a revolutionary proposition. They are not the primary or more effective arena from which to transform us. I believe that revolution is necessary, and this requires a conscious element (working in tandem with the unconscious), one which truly does require us to seek our freedom in the embodied and material quest for full unification with more-than-human forms of Matter. It is this which will abolish the parts of us vested in hierarchy, ownership, and other captive mechanisms. It is this which tends toward liberation of all Things.

Now, colonialism very much has prevented Marxist humanisms from staying with the ecopolitical Ends of materialist analysis; and similarly, cishetpatriarchy and disablism hinder many decolonial humanists from clarifying the ecopolitical Ends of materialist analysis as well. On this account we should be critical of humanism. Humanism hinders us making ourselves as ecologically conscious as materialist analysis ultimately intends for us. Humanism forces materialism's reference point to be the same construct so historically tied up with anthropocentrism, racism, sexism, transmisia, disablism, anti-blackness, the dehumanization of fat folk, dark skinned folk, non-Christian folk, and more. In this way, ironically, humanism links materialism to metaphysical fictions that hierarchically assign value to living and non-living entities, and thus identifies the basis of self-determination erroneously — with oppressive authorities. In understanding struggles for 'humanization' by the colonized as corrupted versions of materialism (that fail to fully consciously meet an ecopolitical End), we must still dig into materialism's project of reclamation and reunification, which is a decolonial and anti-capitalist initiative, and recognize it as something that ties together our liberation with the liberation of more-than-human Matters. Realizing the capacity

to alter our conditions involves our environments and is shared with abiotic and other biotic entities cannot, therefore, be called anthropocentric (neither is it an anthropomorphizing of so-called 'nature' to uphold an ecopolitical origin/end for the materialist premise).

Black struggle allows us to free materialist anti-colonialism from cooption into the silly notion of our species' exceptionalism (and the exceptionalism of those who "overrepresent" themselves as at the apex of our species) — a problem to which humanism has been historically so vulnerable, or which humanism hasn't effectively called our politics out of. We absolutely should go and fetch our history as Black people and use its insights to strain against the brutal weaponization of hierchical 'human' valuation against all life/non-life and especially against the most marginal of Black people. Taking Black critical non-humanism, however, and synthesizing it with a materialist basis for liberation that has always had ecopolitical implications is the only way we will more clearly locate our people's activity in the earthly source of power and call forth the drive in Black people to bring about a world that is free of antagonism and contradiction, ultimately destroying the one so full of it currently. The mattering of Black life is in, quite literally, matter; and the grounds for our value is, quite literally, the ground. And this is not because we (should) control it, but because we come from and are part of it. To ensure that we matter, we must conspire with ground/matter against Massa's house, built on objectifying/thingifying and exploiting. Yes, that means ending our species' participation in those violences. Yes, however, that also means decolonization, which does not have to be anti-black or linked to these violences. Hence, alongside a critical analysis of our rebellion/subversion or our resistance/survival — and the implications these have for the fate of non-humans — we need a consciously ecopolitical science of our revolutionary struggles, which has similar 'non-humanist' (non-anthropocentric) implications.

Change Your Mind - Mason Frost

My brain is not like your brain. This becomes more true if, unlike me, you are not afflicted by chronic depression. It becomes more true if you are a child. It also becomes more true if you are on the autistic spectrum. But even if you do not suffer from chronic depression, or if you are a child, or on the autistic spectrum, that does not make your brain like others who share those differences from me. You might be right or left-handed, you might possess some other chemical difference that gives you mood swings, or causes you to hear or see things others don't, or any other number of effects. Hell, maybe someday some heretofore unknown sentience will be consuming these words with the half-interest of an archaeologist who knows how wrong we all are about so many things, but still wants to know in just what way we were all wrong.

Autism, though, is not a single difference. That's the whole reason there's a spectrum. Autism manifests in many different ways, and can be subtle enough to never be diagnosed, or something that is much harder to miss. Even within the autistic spectrum, there are such great differences that it can be hard for one person to even understand what is going through the mind of another.

All of this is why the concept of neurodiversity needs to exist. Because we all have to acknowledge these differences, and it's important to know just how different one human mind can be from another. And it is also important that we not fall into a hierarchical mode of thinking about minds; the longstanding approach that has kept countless people locked away because no one knew how

to reach them through their schizophrenia, or their manic-depression, or any other thing that made their mind different. Because different is not worse, it's just different.

But the current movement towards this egalitarian approach has some problematic elements that really cannot be ignored. Some of it is the usual – opportunistic elements that take advantage of the noble core, the occasional focus on particular language over nuanced understanding, and a few folks here and there who just don't get it but can hum the right tune – but some is deeper and more concerning. And from what I've observed, one problem stands above the rest.

Neurodiversity should not stand in the way of people taking agency over their own minds.

At the very core of transhumanism is this: we should all have full control over ourselves. But if that agency doesn't extend to our minds, then it is incomplete. We all must have the ability and the choice to think however we so choose. And that doesn't just mean having our own thoughts and opinions. It must include our modes of thinking, our hardware and our software. To advocate anything less is a failure of this core value.

And so, we run into the issue that I have with a number of folks talking about neurodiversity. They have gone from demanding that people of all braintypes be treated with respect and decency, to jealously protecting their own particular neurological structures. And if that were the extent of it, that would be acceptable. I'm suspicious of anyone who is 100% OK with their brain all day every day, but fine – it's your brain, do what you want with it.

But some of these folks have such hostility to the idea of their minds being changed that they take umbrage at other people who express a desire to change their own. And that, I cannot abide. Imagine if there were a contingent of clinically depressed people standing in the way of research that could alter the brains of depressed people in such a way to make them not depressed, all because they were fighting for the rights of depressed people not to be marginalized. I don't know about you, but I would be fucking pissed. Well, this is going on right now in regards to research about autism.

Obviously autism is not depression, but the comparison is not meant to be an equivocation. Besides which, I can't speak for autistic people, but I can speak to my personal experience with depression, which is similarly invisible, and happens to have its own stereotypes and misunderstandings to contend with. I can only hope that this comparison is taken in good faith, as an attempt to empathize, by people with autism. (And yes, I am going to alternate my terms, because there's basically no real consensus on which is better and I sure as hell am not going to be the one to crack that particular code... also every person I've met who has been diagnosed as being on the spectrum could not give less of a shit about that particular dilemma.)

Let's talk for a bit about John Elder Robinson. He is by no means the only autistic person who advocates for people with autism. But his particular story happens to involve a possible method for altering a person's brain so that they are no longer autistic. In his case, transcranial magnetic stimulation had an effect on his mind that allowed him to experience a perspective he had previously been unaware of. I won't speak for him, since when the story broke enough people already did that. (Plus you can read all about his experiences in his books and this article

http://well.blogs.nytimes.com/2016/03/18/an-experimental-autism-treatment-cost-me-my-marriage)

But whatever his personal journey was like, he willingly entered the experimental procedure knowing full well what the intent was. And not once has he denounced that line of research. From everything I know, the man is decidedly pro-science. And this has gotten him a lot of hate. There have been death threats due to his stance on the procedure. People want to kill a man because he believes that autistic people deserve the chance to choose whether or not they remain autistic. People with autism certainly should have the choice to remain autistic, and it is viscerally sickening to hear some parents speak about their children as if being diagnosed with autism is a fate worse than death. But being against the possibility of autistic people (or people who are allistic, I.E. neurotypical) changing themselves is fundamentally not transhuman, and it is a spit in the face of people with autism who might choose to experience life as an allistic person.

The bottom line is this; It's not your fucking choice. You don't get to decide what is right for a marginalized group you are not a part of, and for that matter, being in that group doesn't mean you get to decide what is right for individuals within that group. Not to mention that this sort of mentality is at the festering heart of the disgusting tendency to claim to stand for a marginalized group at the same time as denying a voice to that same group. I'm looking at you, Autism Speaks.

If a blind person wishes to see, don't stand in the way. If a person feels their body doesn't match their gender, let them change. If someone wants an implant to increase their memory, don't tell them to get a fucking notepad. And if someone decides they no longer want their mind to function in a particular way, and you say “No, you cant!” then you're just an asshole, plain and simple. Let science help everyone to change their minds all they want. Because one day, when we've finally won against the enemies of birth control and cyborgs and bodyhackers and transgender folk, that is going to be the next boundary that we, as transhumanists, must break through.

The Incoherence and Unsurvivability of Non-Anarchist Transhumanism – William Gillis

The more means by which people can act the easier attack becomes and the harder defense becomes.

It’s a simple matter of complexity. The attacker only needs to choose one line of attack, the defender needs to secure against all of them. This isn’t just true of small thermal exhaust ports, it’s true in our software ecosystems today and any other system with many dimensions of movement.

Complexity, more degrees of freedom within a system, allow for greater attack surface. When they can come not just from all points on the compass but from above and below as well.

The arc of human history is an arc bent by our creativity and inquiry towards more options, more ways of existing and acting. Towards greater freedom. Every human invention expands in the immediate the number of means we have to act.

And intertwined with such freedom has of course come greater destructive capacity. From the eon when only an elite could be warriors, when attack was the purview of a select few, to an era when

anybody could carry a spear or sword and kill maybe one other person before dying, to the era of the musket and the automatic weapon.

Today each and every one of us carries small grenades around in our pockets and bags. An incidental byproduct of storing charge for our phones and laptops.

Tomorrow the hobbyist with an RNA printer in her garage in Seattle will be able to download or tweak together an EbolaSARSdeathpox of such apocalyptic virulence that it would never evolve naturally. This is not a danger posed by a single technology, it is inherent to the very arc of technological development itself. As our tools expand our physical freedom they force changes to our social freedom.

As we've progressed through our accelerating technological development — as the knowledge we discover and the tools we invent have inexorably expanded our capacity for attack — our social systems have evolved too. They have had to.

From honor systems to deal with a few great warriors to early majoritarian democracies where counting heads was roughly as good as determining how a battle between sides would play out.

But as our technologies expand our capabilities, the protection of minorities and of the lowest of the low has become increasingly important. From muskets in the woods that enabled a minority of insurrectionaries to break from the British Empire, to sticks of "dynamite" — the great leveler, as it became known to the working class in the struggles of the progressive era.

Our social systems, our political institutions, our civic morals, have grudgingly adapted to this changing context. But they have not adapted fast enough.

When we talk about the stunning advancements and changes that have been unleashed by the feedbacking effects of technological development there's an understandable desperation in our language. Guys guys guys this is so important. This is going to be a thing. There are risks to this. We'd better do it right.

But too often people respond to incredibly important questions with "we'll use democracy" — with no analysis of what that actually means. "Democracy" in this context is a cognitive-stop, it's a slogan we use to terminate considerations. To pat ourselves on the back.

The notion that social democracy and transhumanism are reconcilable is absurd.

Democracy in the sense of majoritarian decision making is primeval. It stems from a context where 'how many people' you had determined a battle. But even constitutional democracy, minarchism, enlightened socialism, or technocracy — whatever the system of government — requires control in a way fundamentally irreconcilable with technological empowerment.

Control is like defense. To function it requires a pruning away of complexities, of options, of dimensions.

To attempt centralized control over technology is ultimately to initiate a war that can only be won by totally destroying almost every meaningful aspect of our technologies.

David Cameron, Jeb Bush and numerous other politicians, government functionaries and chiefs of police in the supposedly enlightened west have independently called for the outlawing of cryptography. We laugh at them, we shake our heads and say not here.

But I'm here to tell you what every expert knows, although we desperately try to hide it.

Backdoor systems could totally be made to work. Or at least work for the state. Not for us, of course. But we don't matter when the goal becomes control. When we can't imagine any alternative to control. When our visions have narrowed so dramatically that we can't even fathom other ways to collaborate or resolve conflicts.

The internet could very easily become a whitelisted affair, where every packet is signed by government controlled server infrastructure, point to point to point.

Devices could be back-doored from factory to consumer. No production allowed outside the state's view.

We are not yet at the point where fabrication is distributed enough to make suppression or draconian regulation impossible.

The abolition of general purpose computing is a real threat. As are calls for the abolition of the internet.

When it comes to the internet, to information technologies, to the dissolution of intellectual property, we often say that the math is on the side of freedom. But while it often makes authoritarian control somewhat more challenging those challenges can still be overcome with sufficient force, with sufficient infrastructural rigidity, and with sufficient public support.

The most virulent force in the crypto wars, in the copyright wars, and every other battle over technology in the last three decades has been narrative.

We are on many fronts, in many demographics, losing that battle.

The aristocracy has historically been anti-tech. And much of the mid twentieth century explosion of continental philosophers writing nebulous obscurantist screeds against technology and science were from a tradition that knew perfectly well that they had to decrease the technological means people had access to in order to stay relevant.

They crafted Orwellian visions of "freedom" that were about retreating to some kind of confined and protected static state of life. Their rejection of technology amounted to a rejection of positive freedom, the freedom to. What they encouraged instead was: Freedom from knowledge, freedom from choice, freedom from growth, freedom from creativity and inquiry.

This reactionary current seeps throughout our society. It is immensely influential. It's not to be underestimated.

Freedom-to is disruptive and complex. It expands options. And when truly decentralized — spread to individuals — it makes it impossible for power to function. For any actor, individual or

institution, to control the vast unfathomable diversity and complexity of the world. Impossible to impose edicts, even “democratic” ones.

When liberal or social democrat transhumanists declare that what we need is technology “under the control of The People”, what is never included in that is how exactly that kind of control is supposed to work.

What does a world look like in which we have the capacity to stop people from printing AR-15s? Forget the fuzzy-wuzzy associations of “democracy”, even “direct democracy”. Ask yourself what actually needs to be done to control gene therapy? Single facilities of government overseen use of high technologies? Massive backdoors in everyone’s devices that aggressively monitor and limit use? Totalitarian control of every communication on the planet? Aggressive raids against all hackers and tinkerers? Systematic accounting of every fabrication machinery in existence? Constant surveillance of anyone with knowledge of how these things work? Complete control of all resource allocation on the planet?

This is the ONLY outcome for the logic of “social democracy” when applied to transhuman aspirations.

We cannot control advanced technology without an authoritarianism so complete it would make Hitler and Stalin salivate in their graves.

So what can we do?

At a prior conference here there was a talk on the superhero narrative and I brought up a line from the third X-Men movie in which the president states: “What hope does democracy have when people can move cities with their minds?”

The inevitable response was: “Well we need an ethical awakening, a singularity of empathy that clarifies and refines our values.”

Absolutely.

What does that look like? How do you get there? And what are the mechanisms by which such a world can function? How are disagreements settled?

Thankfully we don’t need to reinvent the wheel. There’s a longstanding movement that has been tackling these social and ethical issues, and developing answers and analysis in depth for the last two centuries.

“Anarchism” as a term was launched by the French journalist Pierre-Joseph Proudhon — a wildly popular reporter and columnist comparable to our Glenn Greenwald today. It was adopted as a way of highlighting and ripping apart the Orwellian use of “anarchy” to signify both maximal freedom — the absence of rulership or of power relations — AND to also simultaneously mean chaotic violence, the presences of competing would-be rulers and fractious power relations. This double use in which the term “without rulership” or “anarchia” is used to instead signify competing or fractured power relations has historically been used to shut down any and all movements

focused on liberty, most famously against the peasants in the English Civil war. You want freedom? We all know that freedom is chaotic violent oppression.

In this definition as promoted by the elites of the middle ages the very idea of NOT controlling each other, not domineering each other, not exploiting, thieving, or doing violence to each other, is written out of our language itself. It is made impossible in some real sense to even think.

Proudhon attacked that by returning the term to its etymological roots and this set off two centuries of consistent diligent resistance to power.

Anarchists have never taken power, we have resisted authoritarianism and oppression in every arena. From calling out Marxism long before its draconian aspirations became public record, to fighting and dying to resist fascism, fighting Franco until he couldn't afford to join Hitler and Mussolini and leading the resistance against the Nazis across Europe. We've fought the robber barons, the czars, the oligarchs, and the soviet bureaucrats.

And we've been extraordinarily popular in different regions at different points in history, although we have not yet had sufficient critical mass to completely transform the world. In every instance where anarchism surged to localized popularity with a few million adherents, as in Spain but also Ukraine and Manchuria, every surrounding power immediately put their wars on hold to collaborate in snuffing out the examples we provided of a better world, of better ways of interacting and settling disputes with one another, that do not turn to control but build a tolerable consensus for all parties when agreement is needed.

We've been at the forefront not just of technology like cryptocurrencies and the tor project, but we've also been at the forefront of struggles against patriarchy, racism, homophobia, ageism, ableism, etc, etc. Since long before there were popular coalitions like "feminism". We smuggled guns to slaves and ran abolitionist journals. We've coursed through the veins of our existing society, pioneering myriad social technologies like credit unions and cooperatives. We've consistently served as the radical edge of the world's conscience, and played a critical role in expanding what is possible while developing and field testing new insights and tools.

Anarchism — as many commentators have wryly noted — has served as the laboratory of the left, of social justice and resistance movements around the world. Even where we remain marginal, the tools we invent eventually become mainstream.

You do not need to wonder how people would resolve conflicts if every super-empowered individual was carrying the equivalent of a nuclear veto in their pocket. We've been testing and developing social forms, advanced game theoretic strategies that treat people that way for ethical reasons alone.

We already represent the ethical framework most at home in navigating a transhuman world of individual superempowerment. For all our ostensible marginalization to the jungles of Chiapas or the streets of Athens, we've been preemptively churning out the politics of the future for the last two centuries.

But what this experience has also brought is an appreciation for the function of power systems, their boring mechanical dynamics. The sociopathic cancer of our power structures will not go quietly into the night. There will not be some kind of awakening that makes our rulers suddenly okay with surrendering their control over us. Allowing new technologies to make them irrelevant. They will not passively sit back and allow alternate infrastructures and cultures, new worlds to develop in the shell of their old one. They have always fought any attempt at this. And they will need to be fought for the future to win.

Anarchism brings a steely-eyed clarity to the landscape on which we struggle.

It says that while state power can sometimes secure some changes, the more you use it the harder it will be to dissolve that power itself.

Marxists pretended as though their end goal was a classless, stateless utopia of maximal freedom, but the means they chose were incoherent with this goal. You can't gulag people into being free. And you can't regulate the tools people build while maintaining a commitment to expanding their options in life, to making us "more than human."

Ends and means are not precisely 1:1, but they are deeply interconnected. And if anarchism — and our toolbox of respectful autonomy and consent — is the only survivable, the only functional way of handling the ultraviolet limit of expanded technological capacity, then we cannot afford to move in opposing directions today. We must move in ways that do not trade away the future for short-sighted ameliorations.

We can't afford, in short, to take steps backward, towards greater state power, greater power even in the hands of corporate giants like Google, in hopes that these monsters we feed to make our tasks easier today will somehow "wither away" on their own accord. Somehow comply meekly as technology impedes and resists the power they've grown accustomed to. We must take the seemingly more difficult path forward, but one that remains consistent.

But thankfully one of the other things anarchism makes clear is that we do not have to raise huge legions of people to our side to win. A tiny tiny minority can make a huge difference, can make it impossible for control to function — can disrupt the rigidity and overextension inherent to systems that attempt to control us.

When I was thirteen I put on a raincoat and trucked up the pacific coast to streets of Seattle the last weekend in November, 1999. That day has since become infamous. Our "victory" over the WTO ministerial has become mythologized to a dangerous degree, but it's worth conveying the desperation we felt beforehand. In the 90s as it grew dramatically in legal and economic strength unopposed, no one knew the WTO even existed. The neoliberal vision it served was right out of 80s cyberpunk, one of monopolistic corporate control, where capital could freely cross borders to feedback in strength but people were left imprisoned in de facto slave camps like Bangladesh and Eritrea. Of course this remains the case. And today we have the TPP. But every observer agrees the momentum of this process was severely stopped that cold November day. Because a few hundred people fought in the streets, raising such a ruckus that silent processes were derailed significantly.

The spectacle of street protest is of course, not a panacea, just a tactic useful within only a limited context and timeframe.

But it reflects a broader reality, that we have many tools at our disposal that utilize weak points in the overextended and rigid commitments that are inherent to any system of control.

And their inability to manage the churning chaos of young students on the streets reflects how computational complexity remain absolutely critical to political issues.

The information age has led to increasing complexity on many fronts through feedbacking effects. The speed that information technology provides to our memetic and cultural mutations has dramatically increased the complexity of any number of things. Take humor for example. Consider what was funny in the 1800s, the 1950s, the 1990s, and what's funny today. Hell let's not forget that in the 1700s we thought setting cats on fire was supreme entertainment.

The complexity of our culture, our identities, our narratives, our relationships, and our politics have only accelerated. And with such complexity comes the hope of a reduced capacity for control. It becomes much harder for politicians or advertisers to sell simple universally potent narratives. They already see increasingly diminishing returns and lessened traction.

What this process of accelerating complexity represents is a social singularity.

If the technological singularity is the point past which we can't make predictions or maintain control because the complexity of technological developments exceeds our grasp then the social singularity is similarly the point past which we can't make predictions or maintain control because the complexity of our culture, ideas, and relations will have grown too rich, diverse, complex, organic, and meta.

Sure we might be able to unleash AI, but the greatest amount of computational power on this planet is presently locked up in slums, favelas, shantytowns, townships. We don't have to wait on the possibility of some hard takeoff in a decade or more. We just have to unleash and better network the existing power of our minds.

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But at core anarchism is an ethical philosophy that seeks to expand freedom. It's most famous commitments are political — the abolition of the state, the abolition of centralized concentrations of coercive power — but it extends further to, for example, critiques of control in interpersonal relations as well as critiques of ideological rigidity. In this respect transhumanism represents yet

another arm of anarchism: a focus on expanding freedom in physical terms and a critique of timid retreat to some stultifying "human nature."

Transhumanism Implies Anarchism – William Gillis

The more means by which people can act the easier attack becomes and the harder defense becomes.

It's a simple matter of complexity. The attacker only needs to choose one line of attack, the defender needs to secure against all of them. This isn't just true of small thermal exhaust ports, it's true in our software ecosystems today and any other system with many dimensions of movement. Complexity — more degrees of freedom within a system — allows for greater attack surface. When they can come not just from all points on the compass but from above and below as well.

The arc of human history is an arc bent by our creativity and inquiry towards more options, more ways of existing and acting. Towards greater freedom. Every human invention expands in the immediate the number of means we have to act.

And intertwined with such freedom has of course come greater destructive capacity. From the eon when only an elite could be warriors, when attack was the purview of a select few, to an era when anybody could carry a spear or sword and kill maybe one other person before dying, to the era of the musket and the automatic weapon. Today each and every one of us carries small grenades around in our pockets and bags. An incidental byproduct of storing charge for our phones and laptops. Tomorrow the hobbyist with an RNA printer in her garage in Seattle will be able to download or tweak together an EbolaSARSdeathpox of such apocalyptic virulence that it would never evolve naturally. This is not a danger posed by a single technology, it is inherent to the very arc of technological development itself. As our tools expand our physical freedom they force changes to our social freedom.

As we've progressed through our accelerating technological development — as the knowledge we discover and the tools we invent have inexorably expanded our capacity for attack — our social systems have evolved too. They have had to. From honor systems to deal with a few great warriors to early majoritarian democracies where counting heads was roughly as good as determining how a battle between sides would play out.

But as our technologies expand our capabilities, the protection of minorities and of the lowest of the low has become increasingly important. From muskets in the woods that enabled a minority of insurrectionaries to break from the British Empire, to sticks of "dynamite" — the great leveler, as it became known to the working class in the struggles of the progressive era.

Our social systems, our political institutions, our civic morals, have grudgingly adapted to this changing context. But they have not adapted fast enough.

When we talk about the stunning advancements and changes that have been unleashed by the feedbacking effects of technological development there's an understandable desperation in our language. Guys guys guys this is so important. This is going to be a thing. There are risks to this. We'd better do it right. But too often people respond to incredibly important questions with "we'll

use democracy" — with no analysis of what that actually means. "Democracy" in this context is a cognitive-stop, it's a slogan we use to terminate considerations. To pat ourselves on the back.

The notion that social democracy and transhumanism are reconcilable is absurd. Democracy in the sense of majoritarian decision making is primeval. It stems from a context where 'how many people' you had determined a battle. But even constitutional democracy, minarchism, enlightened socialism, or technocracy — whatever the system of government — requires control in a way fundamentally irreconcilable with technological empowerment.

Control is like defense. To function it requires a pruning away of complexities, of options, of dimensions. To attempt centralized control over technology is ultimately to initiate a war that can only be won by totally destroying almost every meaningful aspect of our technologies.

David Cameron, Jeb Bush and numerous other politicians, government functionaries and chiefs of police in the supposedly enlightened west have independently called for the outlawing of cryptography. We laugh at them, we shake our heads and say not here.

But I'm here to tell you what every expert knows, although we desperately try to hide it. Backdoor systems could totally be made to work. Or at least work for the interests of the state. Not for us, of course. But we don't matter when the goal becomes control. When we can't imagine any alternative to control. When our visions have narrowed so dramatically that we can't even fathom other ways to collaborate or resolve conflicts.

The internet could very easily become a whitelisted affair, where every packet is signed by government controlled server infrastructure, point to point to point. Devices could be back-doored from factory to consumer. No production allowed outside the state's view. We are not yet at the point where fabrication is distributed enough to make suppression or draconian regulation impossible. The abolition of general purpose computing is a real threat. As are calls for the abolition of the internet. When it comes to the internet, to information technologies, to the dissolution of intellectual property, we often say that the math is on the side of freedom. But while it often makes authoritarian control somewhat more challenging those challenges can still be overcome with sufficient force, with sufficient infrastructural rigidity, and with sufficient public support.

The most virulent force in the crypto wars, in the copyright wars, and every other battle over technology in the last three decades has been narrative.

We are on many fronts, in many demographics, losing that battle.

The aristocracy has historically been anti-tech. And much of the mid twentieth century explosion of continental philosophers writing screeds against technology and science were from a tradition that knew perfectly well that they had to decrease the technological means people had access to in order to stay relevant. They crafted Orwellian visions of "freedom" that were about retreating to some kind of confined and protected static state of life or "human" existence. Their rejection of technology amounted to a rejection of positive freedom, the freedom to. What they encouraged instead was: Freedom from knowledge, freedom from choice, freedom from growth, freedom from creativity and inquiry.

This reactionary current seeps throughout our society. It is immensely influential. It's not to be underestimated.

Freedom-to is disruptive and complex. It expands options. And when truly decentralized — spread to individuals — it makes it impossible for power to function. For any actor, individual or institution, to control the vast unfathomable diversity and complexity of the world. Impossible to impose edicts, even "democratic" ones.

When liberal or social democrat transhumanists declare that what we need is technology "under the control of The People", what is never included in that is how exactly that kind of control is supposed to work.

What does a world look like in which we have the capacity to stop people from printing AR-15s? Forget the fuzzy-wuzzy associations of "democracy", even "direct democracy". Ask yourself what actually needs to be done to control gene therapy? Single facilities of government overseen use of high technologies? Massive backdoors in everyone's devices that aggressively monitor and limit use? Totalitarian control of every communication on the planet? Aggressive raids against all hackers and tinkerers? Systematic accounting of every fabrication machinery in existence? Constant surveillance of anyone with knowledge of how these things work? Complete control of all resource allocation on the planet? This is the only outcome for the logic of "social democracy" when applied to transhuman aspirations.

We cannot control advanced technology without an authoritarianism so complete it would make Hitler and Stalin salivate in their graves.

So what can we do?

At a prior conference here there was a talk on the superhero narrative and I brought up a line from the third X-Men movie in which the president states: "What hope does democracy have when people can move cities with their minds?"

The quick consensus response across the room was: "Well we need an ethical awakening, a singularity of empathy that clarifies and refines our values."

Absolutely.

What what does that look like? How do you get there? And what are the mechanisms by which such a world can function? How are disagreements settled?

Thankfully we don't need to reinvent the wheel. There's a longstanding movement that has been tackling these social and ethical issues, and developing answers and analysis in depth for the last two centuries.

"Anarchism" as a term was launched by the French journalist Pierre-Joseph Proudhon — a wildly popular reporter and columnist comparable to our Glenn Greenwald today. It was adopted as a way of highlighting and ripping apart the Orwellian use of "anarchy" to signify both maximal freedom — the absence of rulership or of power relations — and to also simultaneously mean chaotic violence, the presences of competing would-be rulers and fractious power relations. This

double use in which the term “without rulership” or “anarchia” is used to instead signify competing or fractured power relations has historically been used to shut down any and all movements focused on liberty, most famously against the peasants in the English Civil war. You want freedom? We all know that freedom is chaotic violent oppression.

In this definition as promoted by the elites of the middle ages the very idea of not controlling each other, not domineering each other, not exploiting, thieving, or doing violence to each other, is written out of our language itself. It is made impossible in some real sense to even think.

Proudhon attacked that by returning the term to its etymological roots and this helped set off two centuries of consistent diligent resistance to power.

Anarchists have never taken power. We have resisted authoritarianism and oppression in every arena. From calling out Marxism long before its draconian aspirations became public record, to fighting and dying to resist Fascism, fighting Franco until he couldn’t afford to join Hitler and Mussolini and leading the resistance against the Nazis across Europe. We’ve fought the robber barons, the czars, the oligarchs, and the soviet bureaucrats.

And we’ve been extraordinarily popular in different regions at different points in history, although we have not yet had sufficient critical mass to completely transform the world. In every instance where anarchism surged to localized popularity with a few million adherents, as in Spain but also Ukraine and Manchuria, every surrounding power immediately put their wars on hold to collaborate in snuffing out the examples we provided of a better world, of better ways of interacting and settling disputes with one another, that do not turn to control but build a tolerable consensus for all parties when agreement is needed.

We’ve been at the forefront not just of technology like cryptocurrencies and the tor project, but we’ve also been at the forefront of struggles against patriarchy, racism, homophobia, ageism, ableism, etc, etc. Since long before there were popular coalitions like “feminism”. We smuggled guns to slaves and ran abolitionist journals. We’ve coursed through the veins of our existing society, pioneering myriad social technologies like credit unions and cooperatives. We’ve consistently served as the radical edge of the world’s conscience, and played a critical role in expanding what is possible while developing and field testing new insights and tools.

Anarchism — as many commentators have noted — has served as the laboratory of the left, of social justice and resistance movements around the world. Even where we remain marginal, the tools we invent eventually become mainstream.

You do not need to wonder how people would resolve conflicts if every super-empowered individual was carrying the equivalent of a nuclear veto in their pocket. We’ve been testing and developing social forms, advanced game theoretic strategies that treat people that way for ethical reasons alone.

We already represent the ethical framework most at home in navigating a transhuman world of individual superempowerment. For all our ostensible marginalization to the jungles of Chiapas or the streets of Athens, we’ve been preemptively churning out the politics of the future for the last two centuries.

But what this experience has also brought is an appreciation for the function of power systems, their boring mechanical dynamics. The sociopathic cancer of our power structures will not go quietly into the night. There will not be some kind of awakening that makes our rulers suddenly okay with surrendering their control over us. Allowing new technologies to make them irrelevant. They will not passively sit back and allow alternate infrastructures and cultures, new worlds to develop in the shell of their old one. They have always fought any attempt at this. And they will need to be fought for the future to win.

Anarchism brings a steely-eyed clarity to the landscape on which we struggle.

It says that while state power can sometimes secure some changes, the more you use it the harder it will be to dissolve that power itself.

Marxists pretended as though their end goal was a classless, stateless utopia of maximal freedom, but the means they chose were incoherent with this goal. You can't gulag people into being free. And you can't regulate the tools people build while maintaining a commitment to expanding their options in life, to making us "more than human."

Ends and means are not precisely 1:1, but they are deeply interconnected. And if anarchism — and our toolbox of respectful autonomy and consent — is the only survivable, the only functional way of handling the ultraviolet limit of expanded technological capacity, then we cannot afford to move in opposing directions today. We must move in ways that do not trade away the future for short-sighted ameliorations.

We can't afford, in short, to take steps backward, towards greater state power, greater power even in the hands of corporate giants like Google, in hopes that these monsters we feed to make our tasks easier today will somehow "wither away" on their own accord. Somehow comply meekly as technology impedes and resists the power they've grown accustomed to. We must take the seemingly more difficult path forward, but one that remains consistent.

But thankfully one of the other things anarchism makes clear is that we do not have to raise huge legions of people to our side to win. A tiny tiny minority can make a huge difference, can make it impossible for control to function — can disrupt the rigidity and overextension inherent to systems that attempt to control us.

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Setting the Universe on Fire – William Gillis

Let's say you hunger for liberation, you want to increase freedom. What is freedom but choice?

One might quickly think to equate this with the raw number of immediate options you have. But consider these options as a branching tree. What other options are opened up by choosing a specific option?

It has long been pointed out that if you have a choice between a hundred flavors of toothpaste that's a very limited set of choices because once you make the choice there's not much left to do. There's very little different between the experience of brushing your teeth with one flavor of toothpaste versus another, nothing hangs on it, the impact upon the wider universe is very limited, and no further choices get opened up.

We can see choice in the context of a tree like structure. At each joint there are a number of branches, and these branches themselves have branches, and so on. Some branches have very few sub-branches.

To check that we're not creating disconnected abstractions, phantasms unrelated to reality, at the most fundamental physical level we could consider the branches to be the causal impact of a moving particle. If its angle of deflection from another particle is a free parameter, what are the consequences in the configuration state of a wider system?

At many angles the particle might shoot off on an uninterrupted and boring trajectory, at other angles it might smash into other particles, and at some very unique range of angles it might not only smash into other particles but set off a cavalcade of interactions. And one might just as well think of billiard balls here. When first breaking, a large array of angles one might choose would send the cue ball off to little impact, missing the grouped balls. But in contrast a smaller choice of angles suddenly have rich potential.

In the overall system choice between a few lonely trajectories doesn't amount to much choice at all. The configuration of the system remains largely the same.

When evaluating human choice in society and the wider universe the story is much the same. Every choice is a branch with many further branches, and these branches fork to different degrees and at different depths.

One option may contain a rich array of further options, but no more. An explosion of civil violence may shake off the norms and well worn habits of a society, leading to all kinds of novel situations, but perhaps with all such paths still quickly terminating in death or ruin. A small explosion of brilliant fire, but a brief one, leaving nothing but passive ashen mud.

Similarly another option may lead to a decrease in options in the short term, going to a strictly structured school for example, or avoiding a temptation, in order to potentially expand one's options later.

We could, in theory, index these potential pathways in physically real terms, like extent in space and time, and measure the particle by particle expanse of configuration states and possibility trees opened by an individual's choice.

But for most casual things our human concepts apply easily. Why do we prefer to create and share memes than work more productively at our jobs? Because however much memes may be derided as trivialities, our individual choice has consequence or the potential for consequence upon our friends and possibly well beyond. Taking someone's burger order is methodical, there is almost nothing we can do that will affect the wider world one way or the other. We are replaceable and our jobs are strictly determined.

Meaningful inquiry and creativity are removed. In short we are not allowed to be scientists, or inventors, or artists. The rich potential for reconfiguration that we have within the jelly of our brains, has no impact, it dies or is suppressed beyond our skulls.

It is not so much that we want ownership over our creations, nor that we need some kind of sense of belonging and embeddedness within some community or ritual, it's that we want impact in the world.

We take another customer's order and flash a sweet smile or a grimace, we try to sneak in tiny gifts and jabs, a thin insurgency or frail art project, snuck in between the methodically determined. We struggle to construct possibilities outside the gaze of our boss.

The tyrant wants to control a wider expanse, to own it, to shape it in set ways and exclude any alternatives for it. What we want is merely to affect it. To expand what is possible. At the furthest heights this can be a probe leaving our solar system or a piece of art that enhances how billions of other people see the world.

What's critical here is that such freedom is not rivalrous. The intermixing of our efforts compounds. We can each be heroes, we can each change the world.

In formal physics terms the dynamics being described obviously relate strongly with entropy, which is not so much a matter of decay as the number of possibilities, although it is important to emphasize the interdependence and contingency emphasized in our picture. The idea that the point of consciousness is to increase something like entropy is an old one, that constantly reoccurs to a great many people.

The standard response given to the entropy-maximizers is that a world of maximum entropy, a world where static lattices of dead rocks are liberated into a hot gas, where the universe is set on fire, would be itself a drab affair. And much the same is said when such is mapped to more everyday social relations. Anarchy would be boring. A world of equally heroic angels would be a world without the drama and sacrifice of war and hierarchies.

There are two responses to this. The first is that a hot plasma is not indifferentiable, but contains rich dynamics too fine, multitudinous, and energetic for our clumsy troglodytic eyes to pick out and discern. A world of heroic angels, much less a closely inter-networked one, would not be a world of gray peasants, but one where the engines of art and drama move even faster.

The second response is that such a utopian abstraction of a static end is misleading. The point here is not the fire itself but the setting of the fire. When evaluating pathways here the point is the choice, to maximize the possible, the intersections and forkings of new choices, continuously, in as wide an expanse of spacetime as possible. Liberation is not something cast beyond some arbitrary horizon, but something to be maximized the whole way. The "end" in such a finite conclusive sense is never reachable, all we have is a vast stretch of time across a vast world.

We can fill it with choice, we can set fires so that they spread and never quench, or we can take some bullshit order.

The electronic commons – Uri Gordon

Though not by itself an anarchist initiative, commentators have drawn attention to the Internet's libertarian and communitarian features, particularly "its nonhierarchical structure, low transaction costs, global reach, scalability, rapid response time, and disruption-overcoming (hence censorship-foiling) alternative routing." Though there is another side to this coin (e-consumerism, surveillance, and social isolation), the decentralized structure of the Internet has given rise to a free informational economy online, based on "commons-based peer production" and "group generalized exchange." Contributors to projects such as the GNU/Linux operating system and Wikipedia produce and manipulate information without monetary compensation, motivated instead both by social recognition and the intrinsic enjoyment of their work associated with the "hacker ethic." Many anarchists are active participants in contributing to the development of the electronic commons, and in Europe there is also a developed network of HackLabs—community spaces housing self-assembled computers that offer free Internet access and training in programming.

Of Flying Cars and the Declining Rate of Profit - David Graeber

"Contemporary reality is the beta-version of a science fiction dream." — Richard Barbrook

There is a secret shame hovering over all us in the twenty-first century. No one seems to want to acknowledge it.

For those in what should be the high point of their lives, in their forties and fifties, it is particularly acute, but in a broader sense it affects everyone. The feeling is rooted in a profound sense of disappointment about the nature of the world we live in, a sense of a broken promise—of a solemn promise we felt we were given as children about what our adult world was supposed to be like. I am referring here not to the standard false promises that children are always given (about how the world is fair, authorities are well-meaning, or those who work hard shall be rewarded), but about a very specific generational promise —given above all to those who were children in the fifties, sixties, seventies, or even eighties—one that was never quite articulated as a promise but rather as a set of assumptions about what our adult world would be like. And since it was never quite promised, now that it has spectacularly failed to come true, we're left confused; indignant, but at the same time, embarrassed at our own indignation, ashamed we were ever so silly to believe our elders to begin with.

I am referring, of course, to the conspicuous absence, in 2015, of flying cars.

Well, all right, not just flying cars. I don't really care about flying cars—especially because I don't even drive. What I have in mind are all the technological wonders that any child growing up in the mid-to-late twentieth century simply assumed would exist by 2015. We all know the list: Force fields. Teleportation. Antigravity fields. Tricorders. Tractor beams. Immortality drugs. Suspended animation. Androids. Colonies on Mars. What happened to them? Every now and then it's widely trumpeted that one is about to materialize—clones, for instance, or cryogenics, or anti-aging medications, or invisibility cloaks—but when these don't prove to be false promises, which they usually are, they emerge hopelessly flawed. Point any of this out, and the usual response is a ritual invocation of the wonders of computers—why would you want an antigravity sled when you can have second life?—as if this is some sort of unanticipated compensation. But, even here, we're not nearly where people in the fifties imagined we'd have been by now. We still don't have computers you can have an interesting conversation with, or robots that can walk the dog or fold your laundry.

Speaking as someone who was eight years old at the time of the Apollo moon landing, I have very clear memories of calculating that I would be thirty-nine years of age in the magic year 2000, and wondering what the world around me would be like. Did I honestly expect I would be living in a world of such wonders? Of course. Everyone did. And so do I feel cheated now? Absolutely.

Certainly, I didn't think I'd see all the things we read about in science fiction realized in my lifetime (even assuming my lifetime was not extended by centuries by some newly discovered longevity drug). If you asked me at the time, I'd have guessed about half. But it never occurred to me that I wouldn't see any of them.

I have long been puzzled and fascinated by the near silence surrounding this issue in public discourse. One does occasionally see griping about flying cars on the Internet, but it's muted, or very marginal. For the most part, the topic is treated almost as taboo. At the turn of the millennium, for instance, I was expecting an outpouring of reflections by forty- somethings in the popular media on what we had expected the world of 2000 to be like, and why we had all gotten it so wrong. I couldn't find a single one. Instead, just about all the authoritative voices—both Left and Right—began their reflections from the assumption that a world of technological wonders had, in fact, arrived.

To a very large extent, the silence is due to fear of being ridiculed as foolishly naïve. Certainly if one does raise the issue, one is likely to hear responses like "Oh, you mean all that Jetson stuff?" As if to say, but that was just for children! Surely, as grown-ups, we're supposed to understand that the Jetsons future was about as realistic as the Flintstones past. But of course it wasn't just the Jetsons. All serious science shows designed for children in the fifties, sixties, seventies, and even the eighties—the Scientific Americans, the educational TV programs, the planetarium shows in national museums—all the authoritative voices who told us what the universe was like and why the sky was blue, who explained the periodic table of elements, also assured us that the future was indeed going to involve colonies on other planets, robots, matter transformation devices, and a world much closer to Star Trek than to our own.

The fact that all these voices turned out to be wrong doesn't just create a deep feeling of largely inexpressible betrayal; it also points to some conceptual problems about how we should even talk about history, now that things haven't unfolded as we thought they would. There are contexts where we really can't just wave our hands and make the discrepancy between expectations and reality go away. One obvious one is science fiction. Back in the twentieth century, creators of science fiction movies used to come up with concrete dates in which to place their futuristic fantasies. Often these were no more than a generation in the future. Thus in 1968, Stanley Kubrick felt that a moviegoing audience would find it perfectly natural to assume that only thirty-three years later, in 2001, we would have commercial moon flights, city-like space stations, and computers with humanlike personalities maintaining astronauts in suspended animation while traveling to Jupiter. In fact about the only new technology from 2001 that actually did appear were video telephones, but those were already technically possible in 1968—at the time, they were simply unmarketable because no one really wanted to have one. Similar problems crop up whenever a particular writer, or program, tries to create a grand mythos. According to the universe created by Larry Niven, which I got to know as a teenager, humans in this decade (2010s) are living under a one-world U.N. government and creating their first colony on the moon, while dealing with the social consequences of medical advances that have created a class of immortal rich people. In the Star Trek mythos developed around the same time, in contrast, humans would now be recovering from fighting off the rule of genetically engineered supermen in the Eugenics Wars of the 1990s—a war which ended when we shot them all in suspension pods into outer space. Star Trek writers in the 1990s were thus forced to start playing around with alternate time lines and realities just as a way of keeping the whole premise from falling apart.

By 1989, when the creators of Back to the Future II dutifully placed flying cars and antigravity hoverboards in the hands of ordinary teenagers in the year 2015, it wasn't clear if it was meant as a serious prediction, a bow to older traditions of imagined futures, or as a slightly bitter joke. At any rate, it marked one of the last instances of this sort of thing. Later science fiction futures were largely dystopian, moving from bleak technofascism into some kind of stone-age barbarism, as in Cloud Atlas, or else, studiously ambiguous: the writers remaining coy about the dates, which renders "the future" a zone of pure fantasy, no different really than Middle Earth or Cimmeria. They might even, as with Star Wars, place the future in the past, "a long time ago in a galaxy far, far away." This Future is, most often, not really a future at all, but more like an alternative dimension, a dream-time, some kind of technological Elsewhere, existing in days to come in the same sense that elves and dragon-slayers existed in the past; just another screen for the projection of moral dramas and mythic fantasies. Science fiction has now become just another set of costumes in which one can dress up a Western, a war movie, a horror flick, a spy thriller, or just a fairy tale.

I think it would be wrong, however, to say that our culture has completely sidestepped the issue of technological disappointment. Embarrassment over this issue has ensured that we've been reluctant to engage with it explicitly. Instead, like so many other cultural traumas, pain has been displaced; we can only talk about it when we think we're talking about something else.

In retrospect, it seems to me that entire fin de siècle cultural sensibility that came to be referred to as "postmodernism" might best be seen as just such a prolonged meditation on technological

changes that never happened. The thought first struck me when watching one of the new Star Wars movies. The movie was awful. But I couldn't help but be impressed by the quality of the special effects. Recalling all those clumsy effects typical of fifties sci-fi films, the tin spaceships being pulled along by almost-invisible strings, I kept thinking about how impressed a 1950s audience would have been if they'd known what we could do by now—only to immediately realize, "actually, no. They wouldn't be impressed at all, would they? They thought that we'd actually be doing this kind of thing by now. Not just figuring out more sophisticated ways to simulate it."

That last word, "simulate," is key. What technological progress we have seen since the seventies has largely been in information technologies—that is, technologies of simulation. They are technologies of what Jean Baudrillard and Umberto Eco used to call the "hyper- real"—the ability to make imitations more realistic than the original. The entire postmodern sensibility, the feeling that we had somehow broken into an unprecedented new historical period where we understood that there was nothing new; that grand historical narratives of progress and liberation were meaningless; that everything now was simulation, ironic repetition, fragmentation and pastiche: all this only makes sense in a technological environment where the only major breakthroughs were ones making it easier to create, transfer, and rearrange virtual projections of things that either already existed, or, we now came to realize, never really would. Surely, if we were really taking our vacations in geodesic domes on Mars, or toting about pocket-sized nuclear fusion plants or telekinetic mind-reading devices, no one would ever have been talking like this. The "postmodern" moment was simply a desperate way to take what could only otherwise be felt as a bitter disappointment, and dress it up as something epochal, exciting and new.

It's worthy of note that in the earliest formulations of postmodernism, which largely came out of the Marxist tradition, a lot of this technological subtext was not even subtext; it was quite explicit.

Here's a passage from Frederick Jameson's original Postmodernism, or the Cultural Logic of Late Capitalism, in 1984:

It is appropriate to recall the excitement of machinery in the moment of capital preceding our own, the exhilaration of futurism, most notably, and of Marinetti's celebration of the machine gun and the motorcar. These are still visible emblems, sculptural nodes of energy which give tangibility and figuration to the motive energies of that earlier moment of modernization … the ways in which revolutionary or communist artists of the 1930s also sought to reappropriate this excitement of machine energy for a Promethean reconstruction of human society as a whole …

It is immediately obvious that the technology of our own moment no longer possesses this same capacity for representation: not the turbine, nor even Sheeler's grain elevators or smokestacks, not the baroque elaboration of pipes and conveyor belts, nor even the streamlined profile of the railroad train—all vehicles of speed still concentrated at rest—but rather the computer, whose outer shell has no emblematic or visual power, or even the casings of the various media themselves, as with that home appliance called television which articulates nothing but rather implodes, carrying its flattened image surface within itself.

Where once the sheer physical power of technologies themselves gave us a sense of history sweeping forward, we are now reduced to a play of screens and images.

Jameson originally proposed the term “postmodernism” to refer to the cultural logic appropriate to a new phase of capitalism, one that Ernest Mandel had, as early as 1972, dubbed a “third technological revolution.” Humanity, Mandel argued, stood on the brink of a transformation as profound as the agricultural or industrial revolutions had been: one in which computers, robots, new energy sources, and new information technologies would, effectively, replace old-fashioned industrial labor—the “end of work” as it soon came to be called—reducing us all to designers and computer technicians coming up with the crazy visions that cybernetic factories would actually produce. End of work arguments became increasingly popular in the late seventies and early eighties, as radical thinkers pondered what would happen to traditional working-class struggle once there was no longer a working class. (The answer: it would turn into identity politics.)

Jameson thought of himself as exploring the forms of consciousness and historical sensibilities likely to emerge from this emerging new age. Of course, as we all know, these technological breakthroughs did not, actually, happen. What happened instead is that the spread of information technologies and new ways of organizing transport—the containerization of shipping, for example—allowed those same industrial jobs to be outsourced to East Asia, Latin America, and other countries where the availability of cheap labor generally allowed manufacturers to employ much less technologically sophisticated production-line techniques than they would have been obliged to employ at home. True, from the perspective of those living in Europe and North America, or even Japan, the results did seem superficially to be much as predicted. Smokestack industries did increasingly disappear; jobs came to be divided between a lower stratum of service workers and an upper stratum sitting in antiseptic bubbles playing with computers. But below it all lay an uneasy awareness that this whole new post-work civilization was, basically, a fraud. Our carefully engineered high-tech sneakers were not really being produced by intelligent cyborgs or self-replicating molecular nanotechnology; they were being made on the equivalent of old-fashioned Singer sewing machines, by the daughters of Mexican and Indonesian farmers who had, as the result of WTO or NAFTA-sponsored trade deals, been ousted from their ancestral lands. It was this guilty awareness, it seems to me, that ultimately lay behind the postmodern sensibility, its celebration of the endless play of images and surfaces, and its insistence that ultimately, all those modernist narratives that were supposed to give those images depth and reality had been proved to be a lie.

So: Why did the projected explosion of technological growth everyone was expecting—the moon bases, the robot factories—fail to materialize? Logically, there are only two possibilities. Either our expectations about the pace of technological change were unrealistic, in which case, we need to ask ourselves why so many otherwise intelligent people felt they were not. Or our expectations were not inherently unrealistic, in which case, we need to ask what happened to throw the path of technological development off course.

When cultural analysts nowadays do consider the question—which they rarely do—they invariably choose the first option. One common approach is to trace the problem back to illusions created by the Cold War space race. Why, many have asked, did both the United States and the Soviet Union become so obsessed with the idea of manned space travel in the fifties, sixties, and seventies? It was never an efficient way to engage in scientific research. Was it not the fact that both the

Americans and Russians had been, in the century before, societies of pioneers, the one expanding across the Western frontier, the other, across Siberia? Was it not the same shared commitment to the myth of a limitless, expansive future, of human colonization of vast empty spaces, that helped convince the leaders of both superpowers they had entered into a new "space age" in which they were ultimately battling over control over the future itself? And did not that battle ultimate produce, on both sides, completely unrealistic conceptions of what that future would actually be like?

Obviously there is truth in this. There were powerful myths at play. But most great human projects are rooted in some kind of mythic vision—this, in itself, proves nothing, one way or the other, about the feasibility of the project itself. In this essay, I want to explore the second possibility. It seems to me there are good reasons to believe that at least some of those visions were not inherently unrealistic—and that at least some of these science fiction fantasies (at this point we can't know which ones) could indeed have been brought into being. The most obvious reason is because in the past, they regularly had been. After all, if someone growing up at the turn of the century reading Jules Verne or H. G. Wells tried to imagine what the world would be like in, say, 1960, they imagined a world of flying machines, rocket ships, submarines, new forms of energy, and wireless communication … and that was pretty much exactly what they got. If it wasn't unrealistic in 1900 to dream of men traveling to the moon, why was it unrealistic in the sixties to dream of jet-packs and robot laundry-maids? If from 1750 to 1950 new power sources emerged regularly (steam, electric, petroleum, nuclear …) was it that unreasonable to imagine we'd have seen at least one new one since?

There is reason to believe that even by the fifties and sixties, the real pace of technological innovation was beginning to slow from the heady pace of the first half of the century. There was something of a last spate of inventions in the fifties when microwave ovens (1954), the pill (1957), and lasers (1958) all appeared in rapid succession. But since then, most apparent technological advances have largely taken the form of either clever new ways of combining existing technologies (as in the space race), or new ways to put existing technologies to consumer use (the most famous example here is television, invented in 1926, but only mass-produced in the late forties and early fifties, in a self-conscious effort to create new consumer demand to ensure the American economy didn't slip back into depression). Yet the space race helped convey the notion that this was an age of remarkable advances, and the predominant popular impression during the sixties was that the pace of technological change was speeding up in terrifying, uncontrollable ways. Alvin Toffler's 1970 breakaway bestseller Future Shock can be seen as a kind of high-water mark of this line of thought. In retrospect, it's a fascinating and revealing book.

Toffler argued that almost all of the social problems of the 1960s could be traced back to the increasing pace of technological change. As an endless outpouring of new scientific breakthroughs continually transformed the very grounds of our daily existence, he wrote, Americans were left rudderless, without any clear idea of what normal life was supposed to be like. Perhaps it was most obvious in the case of the family, where, he claimed, not just the pill, but also the prospect of in vitro fertilization, test tube babies, and sperm and egg donation were about to make the very idea of motherhood obsolete. Toffler saw similar things happening in every domain of social life—

nothing could be taken for granted. And humans were not psychologically prepared for the pace of change. He coined a term for the phenomenon: "accelerative thrust." This quickening of the pace of technological advance had begun, perhaps, with the industrial revolution, but by roughly 1850, he argued, the effect had become unmistakable. Not only was everything around us changing, most of it— the sheer mass of human knowledge, the size of the population, industrial growth, the amount of energy being consumed—was changing at an exponential rate. Toffler insisted that the only solution was to begin to create some kind of democratic control over the process—institutions that could assess emerging technologies and the effects they were likely to have, ban those technologies likely to be too socially disruptive, and guide development in directions that would foster social harmony.

The fascinating thing is that while many of the historical trends Toffler describes are accurate, the book itself appeared at almost precisely the moment when most of them came to an end. For instance, it was right around 1970 when the increase in the number of scientific papers published in the world—a figure that had been doubling every fifteen years since roughly 1685—began leveling off. The same is true of the number of books and patents. In other areas, growth did not just slow down—it stopped entirely. Toffler's choice of the word "acceleration" turns out to have been particularly unfortunate. For most of human history, the top speed at which human beings could travel had lingered around twenty-five miles per hour. By 1900 it had increased to perhaps 100 mph, and for the next seventy years it did indeed seem to be increasing exponentially. By the time Toffler was writing, in 1970, the record for the fastest speed at which any human had traveled stood at 24,791 mph, achieved by the crew of Apollo 10 while reentering the earth's atmosphere in 1969, just a year before. At such an exponential rate, it must have seemed reasonable to assume that within a matter of decades, humanity would be exploring other solar systems. Yet no further increase has occurred since 1970.

The record for the fastest a human has ever traveled remains with the crew of Apollo 10. True, the maximum speed of commercial air flight did peak one year later, at 14,000 mph, with the launching of the Concorde in 1971. But airline speed has not only failed to increase since—it has actually decreased since the Concorde's abandonment in 2003.

The fact that Toffler turned out to be wrong about almost everything had no deleterious effects on his own career. Charismatic prophets rarely suffer much when their prophecies fail to materialize. Toffler just kept retooling his analysis and coming up with new spectacular pronouncements every decade or so, always to great public recognition and applause. In 1980 he produced a book called The Third Wave, its argument lifted directly from Ernest Mandel's "third technological revolution"—except that while Mandel argued these changes would spell the eventual end of capitalism, Toffler simply assumed that capitalism would be around forever. By 1990, he had become the personal intellectual guru of Republican congressman Newt Gingrich, who claimed that his own 1994 "Contract with America" was inspired, in part, by the understanding that the United States needed to move from an antiquated, materialist, industrial mindset to a new, free-market, information-age, Third Wave civilization.

There are all sorts of ironies here. Probably one of the greatest real-world achievements of Future Shock had been to inspire the government to create an Office of Technology Assessment (OTA)

in 1972, more or less in line with Toffler's call for some sort of democratic oversight over potentially disruptive technologies. One of Gingrich's first acts on winning control of Congress in 1995 was to defund the OTA as an example of useless government waste. Again, none of this seemed to faze Toffler at all. By that time, he had long since given up trying to influence policy by appealing to the general public, or even really trying to influence political debate; he was, instead, making a living largely by giving seminars to CEOs and the denizens of corporate think tanks. His insights had, effectively, been privatized.

Gingrich liked to call himself a "conservative futurologist." This might seem oxymoronic; but actually, if you look back at Toffler's work in retrospect, the guru's politics line up precisely with his student's, and it's rather surprising anyone ever took him for anything else. The argument of Future Shock is the very definition of conservatism. Progress was always presented as a problem that needed to be solved. True, his solution was ostensibly to create forms of democratic control, but in effect, "democratic" obviously meant "bureaucratic," the creation of panels of experts to determine which inventions would be approved, and which put on the shelf. In this way, Toffler might best be seen as a latter day, intellectually lightweight version of the early nineteenth-century social theorist Auguste Comte. Comte, too, felt that he was standing on the brink of a new age—in his case, the industrial age—driven by the inexorable progress of technology, and that the social cataclysms of his times were really caused by the social system not having managed to adjust. The older, feudal order, had developed not only Catholic theology, a way of thinking about man's place in the cosmos perfectly suited to the social system of the time, but an institutional structure, the Church, that conveyed and enforced such ideas in a way that could give everyone a sense of meaning and belonging. The current, industrial age had developed its own system of ideas—science—but scientists had not succeeded in creating anything like the Catholic Church. Comte concluded that we needed to develop a new science, which he dubbed "sociology," and that sociologists should play the role of priests in a new Religion of Society that would inspire the masses with a love of order, community, work-discipline, and patriarchal family values. Toffler was less ambitious: his futurologists were not supposed to actually play the role of priests. But he shared the same feeling that technology was leading humans to the brink of a great historical break, the same fear of social breakdown, and, for that matter, the same obsession with the need to preserve the sacred role of motherhood—Comte wanted to put the image of a pregnant woman on the flag of his religious movement.

Gingrich did have another guru who was overtly religious: George Gilder, a libertarian theologian, and author, among other things, of a newsletter called the "Gilder Technology Report." Gilder was also obsessed with the relation of technology and social change, but in an odd way, he was far more optimistic. Embracing an even more radical version of Mandel's Third Wave argument, he insisted that what we were seeing since the 1970s with the rise of computers was a veritable "overthrow of matter." The old, materialist, industrial society, where value came from physical labor, was giving way to an information age where value emerged directly from the minds of entrepreneurs, just as the world had originally appeared ex nihilo from the mind of God, just as money, in a proper supply-side economy, emerged ex nihilo from the Federal Reserve and into the hands of creative, value- creating, capitalists. Supply-side economic policies, he concluded, would

ensure that investment would continue to steer away from old government boondoggles like the space program, and towards more productive information and medical technologies.

Gilder, who had begun his career declaring that he aspired to be "America's premier antifeminist," also insisted that such salutary developments could only be maintained by strict enforcement of traditional family values. He did not propose a new religion of society. He didn't feel he had to, since the same work could be done by the Christian evangelical movement that was already forging its strange alliance with the libertarian right.

One would be unwise, perhaps, to dwell too much on such eccentric characters, however influential. For one thing, they came very late in the day. If there was a conscious, or semiconscious, move away from investment in research that might have led to better rockets and robots, and towards research that would lead to such things as laser printers and CAT scans, it had already begun before the appearance of Toffler's Future Shock (1971), let alone Gilder's Wealth and Poverty (1981). What their success does show is that the issues these men raised—the concern that existing patterns of technological development would lead to social upheaval, the need to guide technological development in directions that did not challenge existing structures of authority—found a receptive ear in the very highest corridors of power. There is every reason to believe that statesmen and captains of industry were indeed thinking about such questions, and had been for some time.

So what happened? Over the course of the rest of this essay, which is divided into three parts, I am going to consider a number of factors that I think contributed to ensuring the technological futures we all anticipated never happened. These fall into two broad groups. One is broadly political, having to do with conscious shifts in the allocation of research funding; the other bureaucratic, a change in the nature of the systems administering scientific and technological research.

Thesis: There appears to have been a profound shift, beginning in the 1970s, from investment in technologies associated with the possibility of alternative futures to investment technologies that furthered labor discipline and social control

"The bourgeoisie cannot exist without constantly revolutionizing the instruments of production, and thereby the relations of production, and with them the whole relations of society … All fixed, fast-frozen relations, with their train of ancient and venerable prejudices and opinions, are swept away, all new-formed ones become antiquated before they can ossify. All that is solid melts into air, all that is holy is profaned, and man is at last compelled to face with sober senses his real conditions of life, and his relations with his kind."

—Marx and Engels, Manifesto of the Communist Party (1847)

"I said that fun was very important, too, that it was a direct rebuttal of the kind of ethics and morals that were being put forth in the country to keep people working in a rat race which didn't make any sense because in a few years the machines would do all the work anyway, that there was a whole system of values that people were taught to postpone their pleasure, to put all their money in the bank, to buy life insurance, a whole bunch of things that didn't make any sense to our generation at all."

—Abbie Hoffman, from the trial of the Chicago Seven (1970)

Since its inception in the eighteenth century, the system that has come to be known as "industrial capitalism" has fostered an extremely rapid rate of scientific advance and technological innovation—one unparalleled in previous human history. Its advocates have always held this out as the ultimate justification for the exploitation, misery, and destruction of communities the system also produced. Even its most famous detractors, Karl Marx and Friedrich Engels, were willing to celebrate capitalism—if for nothing else—for its magnificent unleashing of the "productive forces." Marx and Engels also believed that that very tendency, or, to be more precise, capitalism's very need to continually revolutionize the means of industrial production, would eventually be its undoing.

Is it possible that they were right? And is it also possible that in the sixties, capitalists, as a class, began to figure this out?

Marx's specific argument was that, for certain technical reasons, value, and therefore profits, can only be extracted from human labor. Competition forces factory owners to mechanize production, so as to reduce labor costs, but while this is to the short-term advantage of the individual firm, the overall effect of such mechanization is actually to drive the overall rate of profit of all firms down. For almost two centuries now, economists have debated whether all this is really true. But if it is true, the otherwise mysterious decision by industrialists not to pour research funds into the invention of the robot factories that everyone was anticipating in the sixties, and instead to begin to relocate their factories to more labor-intensive, low-tech facilities in China or the Global South, makes perfect sense.

I've already observed that there's reason to believe the pace of technological innovation in productive processes—the factories themselves—had already begun to slow down considerably in the fifties and sixties. Obviously it didn't look that way at the time. What made it appear otherwise were largely the side-effects of U.S. rivalry with the Soviet Union. This seems to have been true in two ways. One was a conscious policy: the Cold War saw frenetic efforts by U.S. industrial planners to find ways to apply existing technologies to consumer purposes, to create an optimistic sense of burgeoning prosperity and guaranteed progress that, it was hoped, would undercut the appeal of radical working-class politics. The famous 1959 "kitchen debate" between Richard Nixon and Nikita Khrushchev made the politics quite explicit: "your communist 'worker's state' may have beat us into outer space," Nixon effectively argued, "but it's capitalism that creates technology like washing machines that actually improve the lives of the toiling masses." The other was the space race. In either case, the initiative really came from the Soviet Union itself. All this is difficult for Americans to remember, because with the end of the Cold War, the popular image of the USSR switched so quickly from terrifying rival to pathetic basket case—the exemplar of a society that "just didn't work." Back in the fifties, many U.S. planners were laboring under the suspicion that the Soviet system quite possibly worked much better than their own. Certainly, they keenly recalled the fact that in the 1930s, while the United States was mired in depression, the Soviet Union was maintaining almost unprecedented economic growth rates of 10 to 12 percent a year—an achievement quickly followed by the production of the vast tank armies that defeated Hitler, and of course, the launching of Sputnik in 1957, followed by the first manned spacecraft,

the Vostok, in 1961. When Khrushchev assured Nixon that Soviet living standards would surpass those of the Americans in seven years, many Americans feared he might actually be right.

It's often said that the Apollo moon landing was the greatest historical achievement of Soviet communism. Surely, the United States would never have contemplated such a feat had it not been for the cosmic ambitions of the Soviet Politburo. Even putting things this way is a bit startling. "Cosmic ambitions?" We are used to thinking of the Politburo as a group of unimaginative grey bureaucrats, but while the Soviet Union was certainly run by bureaucrats, they were, from the beginning, bureaucrats who dared to dream astounding dreams. (The dream of world revolution was just the first.) Of course, most of their grandiose projects—changing the course of mighty rivers, that sort of thing—either turned out to be ecologically and socially disastrous, or, like Stalin's projected one-hundred-story Palace of the Soviets, which was to be topped by a twenty-story statue of Lenin, never got off the ground. And after the initial successes of the Soviet space program, most projects remained on the drawing board. But the Soviet leadership never ceased coming up with new ones. Even in the eighties, when the United States was attempting its own last—itself abortive—grandiose scheme, Star Wars, the Soviets were still planning and scheming ways to transform the world through creative uses of technology. Few outside of Russia now remember most of these projects, but vast resources were devoted to them. It's also worth noting that unlike the Star Wars project, which was a purely military project designed to sink the Soviet Union, most were peaceful: as for instance, the attempt to solve the world hunger problem by harvesting lakes and oceans with an edible bacteria called spirulina, or to solve world energy problems by a truly breathtaking plan to launch hundreds of gigantic solar power platforms into orbit and beaming the resulting electricity back to earth.

Even the golden age of science fiction, which had its heyday in the fifties and sixties, and which first developed that standard repertoire of future inventions—force fields, tractor beams, warp drives—that any contemporary eight-year-old is familiar with (just as surely as they will know that garlic, crosses, stakes, and sunlight are what's most likely to be of help in slaying vampires) occurred in the United States and the USSR simultaneously. Or consider Star Trek, that quintessence of American mythology. Is not the Federation of Planets—with its high-minded idealism, strict military discipline, and apparent lack of both class differences and any real evidence of multiparty democracy—really just an Americanized vision of a kinder, gentler Soviet Union, and above all, one that actually "worked"?

What I find remarkable about Star Trek, in particular, is that there is not only no real evidence of democracy, but that almost no one seems to notice its absence. Granted, the Star Trek universe has been endlessly elaborated, with multiple series, movies, books and comics, even encyclopedias, not to mention decades' worth of every sort of fan fiction, so the question of the political constitution of the Federation did eventually have to come up. And when it did there was no real way anyone could say it was not a democracy. So one or two late references to the Federation as having an elected President and legislature were duly thrown in. But this is meaningless. Signs of real democratic life are entirely absent in the show—no character ever makes even a passing reference to elections, political parties, divisive issues, opinion polls, slogans, plebiscites, protests, or campaigns. Does Federation "democracy" even operate on a party system? If so, what are the

parties? What sort of philosophy or core constituency does each represent? In 726 episodes we're not given the slightest clue.

One might object: the characters themselves are part of Star Fleet. They're in the military. True; but in real democratic societies, or even constitutional republics like the United States, soldiers and sailors regularly express political opinions about all sorts of things. You never see anyone in Star Fleet saying, "I never should have voted for those idiots pushing the expansionist policy, now look what a mess they've gotten into in Sector 5" or "when I was a student I was active in the campaign to ban terraforming of class-C planets but now I'm not sure we were right." When political problems do arise, and they regularly do, those sent in to deal with them are invariably bureaucrats, diplomats, and officials. Star Trek characters complain about bureaucrats all the time. They never complain about politicians. Because political problems are always addressed solely through administrative means.

But this is of course exactly what one would expect under some form of state socialism. We tend to forget that such regimes, also, invariably claimed to be democracies. On paper, the USSR under Stalin boasted an exemplary constitution, with far more democratic controls than European parliamentary systems of the time. It was just that, much as in the Federation, none of this had any bearing on how life actually worked.

The Federation, then, is Leninism brought to its full and absolute cosmic success—a society where secret police, reeducation camps, and show trials are not necessary because a happy conjuncture of material abundance and ideological conformity ensures the system can now run entirely by itself.

While no one seems to know or much care about the Federation's political composition, its economic system has, from the eighties onward, been subject to endless curiosity and debate. Star Trek characters live under a regime of explicit communism. Social classes have been eliminated. So too have divisions based on race, gender, or ethnic origin. The very existence of money, in earlier periods, is considered a weird and somewhat amusing historical curiosity. Menial labor has been automated into nonexistence. Floors clean themselves. Food, clothing, tools and weapons can be whisked into existence at will with a mere expenditure of energy, and even energy does not seem to be rationed in any significant way. All this did raise some hackles, and it would be interesting to write a political history of the debate over the economics of the future it sparked in the late eighties and early nineties. I well remember watching filmmaker Michael Moore, in a debate with editors of The Nation, pointing out that Star Trek showed that ordinary working-class Americans were far more amenable to overt anticapitalist politics than the beacons of the mainstream "progressive" left. It was around that time, too, that conservatives and libertarians on the Internet also began to take notice, filling newsgroups and other electronic forums with condemnations of the show as leftist propaganda. But suddenly, we learned that money had not entirely disappeared. There was latinum. Those who traded in it, however, were an odious race who seemed to be almost exactly modeled on Medieval Christian stereotypes of Jews, except with oversized ears instead of oversized noses. (Amusingly, they were given a name, Ferengi, that is actually the Arabic and Hindi term for "annoying white person.") On the other hand, the suggestion that the Federation was promoting communism was undercut by the introduction of the Borg, a

hostile civilization so utterly communistic that individuality had been effaced completely, sucking any sentient life form it assimilated into one terrifying beehive mind.

By the time of the moon landing of 1968, U.S. planners no longer took their competition seriously. The Soviets had lost the space race, and as a result, the actual direction of American research and development could shift away from anything that might lead to the creation of Mars bases and robot factories, let alone become the technological basis for a communist utopia.

The standard line, of course, is that this shift of priorities was simply the natural result of the triumph of the market. The Apollo program was the quintessential Big Government project—Soviet-inspired in the sense that it required a vast national effort, coordinated by an equally vast government bureaucracy. As soon as the Soviet threat was safely out of the picture, this story goes, capitalism was free to revert to lines of technological development more in accord with its normal, decentralized, free-market imperatives—such as privately funded research into marketable products like touch-pad phones, adventurous little start- ups, and the like. This is, certainly, the line that men like Toffler and Gilder began taking in the late seventies and early eighties. But it's obviously wrong.

First of all, the amount of really innovative research being done in the private sector has actually declined since the heyday of Bell Labs and similar corporate research divisions in the fifties and sixties. Partly this is because of a change of tax regimes. The phone company was willing to invest so much of its profits in research because those profits were highly taxed—given the choice between sinking the money into higher wages for its workers (which bought loyalty) and research (which made sense to a company that was still locked in the old mind-set that said corporations were ultimately about making things, rather than making money), and having that same money simply appropriated by the government, the choice was obvious. After the changes in the seventies and eighties described in the introduction, all this changed. Corporate taxes were slashed. Executives, whose compensation now increasingly took the form of stock options, began not just paying the profits to investors in dividends, but using money that would otherwise be directed towards raises, hiring, or research budgets on stock buybacks, raising the values of the executives' portfolios but doing nothing to further productivity. In other words, tax cuts and financial reforms had almost precisely the opposite effect as their proponents claimed they would.

At the same time, the U.S. government never did abandon gigantic state-controlled schemes of technological development. It just shifted their emphasis sharply away from civilian projects like the space program and in the direction of military research—not just Star Wars, which was Reagan's version of a vast Soviet-scale project, but an endless variety of weapons projects, research in communications and surveillance technologies, and similar, "security-related" concerns. To some degree this had always been true: the billions poured into missile research alone had always dwarfed the relatively insignificant sums allocated to the space program. Yet by the 1970s, even much basic research came to be conducted following essentially military priorities. The most immediate reason we don't have robot factories is that, for the last several decades, some 95 percent of robotics research funding has been channeled through the Pentagon, which is of course has far more interested in the kind of discoveries that might lead to the development of unmanned drones than fully automated bauxite mines or robot gardeners.

These military projects did have their own civilian spin-offs: the Internet is one. But they had the effect of guiding development in very specific directions.

One might suggest an even darker possibility. A case could be made that even the shift into R&D on information technologies and medicine was not so much a reorientation towards market-driven consumer imperatives, but part of an all-out effort to follow the technological humbling of the Soviet Union with total victory in the global class war: not only the imposition of absolute U.S. military dominance overseas, but the utter rout of social movements back home. The technologies that emerged were in almost every case the kind that proved most conducive to surveillance, work discipline, and social control. Computers have opened up certain spaces of freedom, as we're constantly reminded, but instead of leading to the workless utopia Abbie Hoffman or Guy Debord imagined, they have been employed in such a way as to produce the opposite effect. Information technology has allowed a financialization of capital that has driven workers ever more desperately into debt, while, at the same time, allowed employers to create new "flexible" work regimes that have destroyed traditional job security and led to a massive increase in overall working hours for almost all segments of the population. Along with the export of traditional factory jobs, this has put the union movement to rout and thus destroyed any real possibility of effective working-class politics. Meanwhile, despite unprecedented investment in research on medicine and life sciences, we still await cures for cancer or even of the common cold; instead, the most dramatic medical breakthroughs we have seen have taken the form of drugs like Prozac, Zoloft, or Ritalin—tailor-made, one might say, to ensure that these new professional demands don't drive us completely, dysfunctionally, crazy.

When historians write the epitaph for neoliberalism, they will have to conclude that it was the form of capitalism that systematically prioritized political imperatives over economic ones.

That is: given a choice between a course of action that will make capitalism seem like the only possible economic system, and one that will make capitalism actually be a more viable long-term economic system, neoliberalism has meant always choosing the former. Does destroying job security while increasing working hours really create a more productive (let alone innovative, loyal) workforce? There is every reason to believe that exactly the opposite is the case. In purely economic terms the result of neoliberal reform of labor markets is almost certainly negative—an impression that overall lower economic growth rates in just about all parts of the world in the eighties and nineties would tend to reinforce. However it has been spectacularly effective in depoliticizing labor. The same could be said of the burgeoning growth in armies, police, and private security services. They're utterly unproductive—nothing but a resource sink. It's quite possible, in fact, that the very weight of the apparatus created to ensure the ideological victory of capitalism will itself ultimately sink it. But it's also easy to see how, if the ultimate imperative of those running the world is choking off the possibility of any sense of an inevitable, redemptive future that will be fundamentally different than the world today must be a crucial part of the neoliberal project.

Antithesis: Yet even those areas of science and technology that did receive massive funding have not seen the breakthroughs originally anticipated

At this point, the pieces would seem to be falling neatly into place. By the 1960s, conservative political forces had become skittish about the socially disruptive effects of technological progress, which they blamed for the social upheavals of the era, and employers were beginning to worry about the economic impact of mechanization. The fading of the Soviet threat allowed for a massive reallocation of resources in directions seen as less challenging to social and economic arrangements—and ultimately, to ones that could support a campaign to sharply reverse the gains progressive social movements had made since the forties, thus achieving a decisive victory in what U.S. elites did indeed see as a global class war. The change of priorities was touted as a withdrawal of big-government projects and a return to the market, but it actually involved a shift in the orientation of government-directed research, away from programs like NASA—or, say, alternative energy sources—and toward even more intense focus on military, information, and medical technologies.

I think all this is true as far as it goes; but it can't explain everything. Above all, it cannot explain why even in those areas that have become the focus of well-funded research projects, we have not seen anything like the kind of advances anticipated fifty years ago. To take only the most obvious example: if 95 percent of robotics research has been funded by the military, why is there still no sign of Klaatu-style killer robots shooting death rays from their eyes? Because we know they've been working on that.

Obviously, there have been advances in military technology. It's widely acknowledged that one of the main reasons we all survived the Cold War is that while nuclear bombs worked more or less as advertised, the delivery systems didn't; Intercontinental Ballistic Missiles weren't really capable of hitting cities, let alone specific targets inside them, which meant there was little point in launching a nuclear first strike unless you were consciously intending to destroy the world. Contemporary cruise missiles, in contrast, are fairly accurate. Still, all those much-vaunted precision weapons never seem capable of taking out specific individuals (Saddam, Osama, Gaddafi), even if hundreds are dropped. Drones are just model airplanes, driven by remote control. And ray guns of any sort have not materialized, surely not for lack of trying—we have to assume the Pentagon has poured billions into coming up with one, but the closest they're come so far are lasers (a fifties technology) that might, if aimed correctly, make an enemy gunner looking directly at the beam go blind. This is not just unsporting, but rather pathetic. Phasers that can be set to stun do not appear to even be on the drawing boards; in fact, when it comes to infantry combat, the preferred weapon in 2011, almost everywhere, remains the AK-47, a Soviet design, named after the year it was first introduced: 1947.

The same, as I've already noted, can be said of widely anticipated breakthroughs in medicine, and even (dare I say?) computers. The Internet is surely a remarkable thing. Still, if a fifties sci-fi fan were to appear in the present and ask what the most dramatic technological achievement of the intervening sixty years had been, it's hard to imagine the reaction would have been anything but bitter disappointment. He would almost certainly have pointed out that all we are really talking about here is a super-fast and globally accessible combination of library, post office, and mail order catalog. "Fifty years and this is the best our scientists managed to come up with? We were expecting computers that could actually think!"

All this is true, despite the fact that overall levels of research funding have increased dramatically since the 1970s. Of course, the proportion of that funding that comes from the corporate sector has increased even more dramatically, to the point where private enterprise is now funding twice as much research as the government. But the total increase is so large that the overall amount of government research funding, in real dollar terms, is still much higher than it was before. Again, while "basic," "curiosity-driven," or "blue skies" research—the kind that is not driven by the prospect of any immediate practical application, and which is therefore most likely to lead to unexpected breakthroughs—is an ever-smaller proportion of the total, so much money is being thrown around nowadays that overall levels of basic research funding has actually gone up. Yet most honest assessments have agreed that the results have been surprisingly paltry. Certainly we no longer see anything like the continual stream of conceptual revolutions—genetic inheritance, relativity, psychoanalysis, quantum mechanics—that humanity had grown used to, and even to expect, a hundred years before.

Why?

One common explanation is that when funders do conduct basic research, they tend to put all their eggs in one gigantic basket: "Big Science," as it has come to be called. The Human Genome Project is often held out as an example. Initiated by the U.S. government, the project ended up spending almost three billion dollars and employing thousands of scientists and staff in five different countries, generating enormous expectations, only to discover that human gene sequences are nearly identical to those of chimpanzees, distinctly less complicated than the gene sequences of, say, rice, and that there would appear to be very little to be learned from them that's of immediate practical application. Even more— and I think this is really key—the hype and political investment surrounding such projects demonstrate the degree to which even basic research now seems to be driven by political, administrative, and marketing imperatives (the Human Genome Project for instance had its own corporate-style logo) that make it increasingly unlikely that anything particularly revolutionary will result.

Here, I think our collective fascination with the mythic origins of Silicon Valley and the Internet have blinded us to what's really going on. It has allowed us imagine that research and development is now driven, primarily, by small teams of plucky entrepreneurs, or the sort of decentralized cooperation that creates open-source software. It isn't. These are just the sort of research teams most likely to produce results. If anything, research has been moving in the opposite direction. It is still driven by giant, bureaucratic projects; what has changed is the bureaucratic culture. The increasing interpenetration of government, university, and private firms has led all parties to adopt language, sensibilities, and organizational forms that originated in the corporate world. While this might have helped somewhat in speeding up the creation of immediately marketable products—as this is what corporate bureaucracies are designed to do—in terms of fostering original research, the results have been catastrophic.

Here I can speak from experience. My own knowledge comes largely from universities, both in the United States and the UK. In both countries, the last thirty years have seen a veritable explosion of the proportion of working hours spent on administrative paperwork, at the expense of pretty much everything else. In my own university, for instance, we have not only more administrative

staff than faculty, but the faculty, too, are expected to spend at least as much time on administrative responsibilities as on teaching and research combined. This is more or less par for the course for universities worldwide. The explosion of paperwork, in turn, is a direct result of the introduction of corporate management techniques, which are always justified as ways of increasing efficiency, by introducing competition at every level. What these management techniques invariably end up meaning in practice is that everyone winds up spending most of their time trying to sell each other things: grant proposals; book proposals; assessments of our students' job and grant applications; assessments of our colleagues; prospectuses for new interdisciplinary majors, institutes, conference workshops, and universities themselves, which have now become brands to be marketed to prospective students or contributors. Marketing and PR thus come to engulf every aspect of university life.

The result is a sea of documents about the fostering of "imagination" and "creativity," set in an environment that might as well have been designed to strangle any actual manifestations of imagination and creativity in the cradle. I am not a scientist. I work in social theory. But I have seen the results in my own field of endeavor. No major new works of social theory have emerged in the United States in the last thirty years. We have, instead, been largely reduced to the equivalent of Medieval scholastics, scribbling endless annotations on French theory from the 1970s, despite the guilty awareness that if contemporary incarnations of Gilles Deleuze, Michel Foucault, or even Pierre Bourdieu were to appear in the U.S. academy, they would be unlikely to even make it through grad school, and if they somehow did make it, they would almost certainly be denied tenure.

There was a time when academia was society's refuge for the eccentric, brilliant, and impractical. No longer. It is now the domain of professional self-marketers. As for the eccentric, brilliant, and impractical: it would seem society now has no place for them at all.

If all this is true in the social sciences, where research is still carried out largely by individuals, with minimal overhead, one can only imagine how much worse it is for physicists. And indeed, as one physicist has recently warned students pondering a career in the sciences, even when one does emerge from the usual decade-long period languishing as someone else's flunky, one can expect one's best ideas to be stymied at every point.

You [will] spend your time writing proposals rather than doing research. Worse, because your proposals are judged by your competitors you cannot follow your curiosity, but must spend your effort and talents on anticipating and deflecting criticism rather than on solving the important scientific problems … It is proverbial that original ideas are the kiss of death for a proposal; because they have not yet been proved to work.

That pretty much answers the question of why we don't have teleportation devices or antigravity shoes. Common sense dictates that if you want to maximize scientific creativity, you find some bright people, give them the resources they need to pursue whatever idea comes into their heads, and then leave them alone for a while. Most will probably turn up nothing, but one or two may well discover something completely unexpected. If you want to minimize the possibility of unexpected breakthroughs, tell those same people they will receive no resources at all unless they

spend the bulk of their time competing against each other to convince you they already know what they are going to discover.

That's pretty much the system we have now.

In the natural sciences, to the tyranny of managerialism we can also add the creeping privatization of research results. As the British economist David Harvie has recently reminded us, "open source" research is not new. Scholarly research has always been open- source in the sense that scholars share materials and results. There is competition, certainly, but it is, as he nicely puts it, "convivial":

Convivial competition is where I (or my team) wish to be the first to prove a particular conjecture, to explain a particular phenomenon, to discover a particular species, star or particle, in the same way that if I race my bike against my friend I wish to win. But convivial competition does not exclude cooperation, in that rival researchers (or research teams) will share preliminary results, experience of techniques and so on … Of course, the shared knowledge, accessible through books, articles, computer software and directly, through dialogue with other scientists, forms an intellectual commons.

Obviously this is no longer true of scientists working in the corporate sector, where findings are jealously guarded, but the spread of the corporate ethos within the academy and research institutes themselves has increasingly caused even publicly funded scholars to treat their findings as personal property. Less is published. Academic publishers ensure that findings that are published are more difficult to access, further enclosing the intellectual commons. As a result, convivial, open-source competition slides further into something much more like classic market competition.

There are all sorts of forms of privatization, up to and including the simple buying-up and suppression of inconvenient discoveries by large corporations for fear of their economic effects. All this is much noted. More subtle is the way the managerial ethos itself militates against the implementation of anything remotely adventurous or quirky, especially, if there is no prospect of immediate results. Oddly, the Internet can be part of the problem here:

Most people who work in corporations or academia have witnessed something like the following: A number of engineers are sitting together in a room, bouncing ideas off each other. Out of the discussion emerges a new concept that seems promising. Then some laptop-wielding person in the corner, having performed a quick Google search, announces that this "new" idea is, in fact, an old one; it—or at least vaguely similar— has already been tried. Either it failed, or it succeeded. If it failed, then no manager who wants to keep his or her job will approve spending money trying to revive it. If it succeeded, then it's patented and entry to the market is presumed to be unattainable, since the first people who thought of it will have "first-mover advantage" and will have created "barriers to entry." The number of seemingly promising ideas that have been crushed in this way must number in the millions.

I could go on, but I assume the reader is getting the idea. A timid, bureaucratic spirit has come to suffuse every aspect of intellectual life. More often than not, it comes cloaked in a language of creativity, initiative, and entrepreneurialism. But the language is meaningless. The sort of thinkers

most likely to come up with new conceptual breakthroughs are the least likely to receive funding, and if, somehow, breakthroughs nonetheless occur, they will almost certainly never find anyone willing to follow up on the most daring implications.

Let me return in more detail to some of the historical context briefly outlined in the introduction.

Giovanni Arrighi, the Italian political economist, has observed that after the South Sea Bubble, British capitalism largely abandoned the corporate form. The combination of high finance and small family firms that had emerged after the industrial revolution continued to hold throughout the next century—Marx's London, a period of maximum scientific and technological innovation; or Manchester; or Birmingham were not dominated by large conglomerates but mainly by capitalists who owned a single factory. (This is one reason Marx could assume capitalism was characterized by constant cutthroat competition.) Britain at that time was also notorious for being just as generous to its oddballs and eccentrics as contemporary America is intolerant. One common expedient was to allow them to become rural vicars, who, predictably, became one of the main sources for amateur scientific discoveries.

As I mentioned, contemporary, bureaucratic, corporate capitalism first arose in the United States and Germany. The two bloody wars these rivals fought culminated, appropriately enough, in vast government-sponsored scientific programs to see who would be the first to discover the atom bomb. Indeed, even the structure of U.S. universities has always been based on the Prussian model. True, during these early years, both the United States and Germany did manage to find a way to cultivate their creative eccentrics—in fact, a surprising number of the most notorious ones that ended up in America (Albert Einstein was the paradigm) actually were German. During the war, when matters were desperate, vast government projects like the Manhattan Project were still capable of accommodating a whole host of bizarre characters (Oppenheimer, Feynman, Fuchs …). But as American power grew more and more secure, the country's bureaucracy became less and less tolerant of its outliers. And technological creativity declined.

The current age of stagnation seems to have begun after 1945, precisely at the moment the United States finally and definitively replaced the UK as organizer of the world economy. True, in the early days of the U.S. Space Program—another period of panic— there was still room for genuine oddballs like Jack Parsons, the founder of NASA's Jet Propulsion Laboratory. Parsons was not only a brilliant engineer—he was also a Thelemite magician in the Aleister Crowley tradition, known for regularly orchestrating ceremonial orgies in his California home. Parsons believed that rocket science was ultimately just one manifestation of deeper, magical principles. But he was eventually fired. U.S. victory in the Cold War guaranteed a corporatization of existing university and scientific bureaucracies sufficiently thorough to ensure that no one like him would ever get anywhere near a position of authority to start with.

Americans do not like to think of themselves as a nation of bureaucrats—quite the opposite, really—but, the moment we stop imagining bureaucracy as a phenomenon limited to government offices, it becomes obvious that this is precisely what we have become. The final victory over the Soviet Union did not really lead to the domination of "the market." More than anything, it simply cemented the dominance of fundamentally conservative managerial elites—corporate bureaucrats

who use the pretext of short-term, competitive, bottom-line thinking to squelch anything likely to have revolutionary implications of any kind.

Synthesis: On the Movement from Poetic to Bureaucratic Technologies

"All the labor-saving machinery that has hitherto been invented has not lessened the toil of a single human being."

—John Stuart Mill

It is the premise of this book that we live in a deeply bureaucratic society. If we do not notice it, it is largely because bureaucratic practices and requirements have become so all- pervasive that we can barely see them—or worse, cannot imagine doing things any other way.

Computers have played a crucial role in all of this. Just as the invention of new forms of industrial automation in the eighteenth and nineteenth centuries had the paradoxical effect of turning more and more of the world's population into full-time industrial workers, so has all the software designed to save us from administrative responsibilities in recent decades ultimately turned us all into part or full-time administrators. Just as university professors seem to feel it is inevitable that they will spend more and more of their time managing grants, so do parents simply accept that they will have to spend weeks of every year filling out forty-page online forms to get their children into acceptable schools, and store clerks realize that they will be spending increasing slices of their waking lives punching passwords into their phones to access, and manage, their various bank and credit accounts, and pretty much everyone understands that they have to learn how to perform jobs once relegated to travel agents, brokers, and accountants.

Someone once figured out that the average American will spend a cumulative six months of her life waiting for the light to change. I don't know if similar figures are available for how long she is likely to spend filling out forms, but it must be at least that much. If nothing else, I think it's safe to say that no population in the history of the world has spent nearly so much time engaged in paperwork.

Yet all of this is supposed to have happened after the overthrow of horrific, old-fashioned, bureaucratic socialism, and the triumph of freedom and the market. Certainly this is one of the great paradoxes of contemporary life, much though—like the broken promises of technology—we seem to have developed a profound reluctance to address the problem.

Clearly, these problems are linked—I would say, in many ways, they are ultimately the same problem. Nor is it merely a matter of bureaucratic, or more specifically managerial, sensibilities having choked off all forms of technical vision and creativity. After all, as we're constantly reminded, the Internet has unleashed all sorts of creative vision and collaborative ingenuity. What it has really brought about is a kind of bizarre inversion of ends and means, where creativity is marshaled to the service of administration rather than the other way around.

I would put it this way: in this final, stultifying stage of capitalism, we are moving from poetic technologies to bureaucratic technologies.

By poetic technologies, I refer to the use of rational, technical, bureaucratic means to bring wild, impossible fantasies to life. Poetic technologies in this sense are as old as civilization. They could even be said to predate complex machinery. Lewis Mumford used to argue that the first complex machines were actually made of people. Egyptian pharaohs were only able to build the pyramids because of their mastery of administrative procedures, which then allowed them to develop production line techniques, dividing up complex tasks into dozens of simple operations and assigning each to one team of workmen—even though they lacked mechanical technology more complex than the lever and inclined plane. Bureaucratic oversight turned armies of peasant farmers into the cogs of a vast machine. Even much later, after actual cogs had been invented, the design of complex machinery was always to some degree an elaboration of principles originally developed to organize people.

Yet still, again and again, we see those machines—whether their moving parts are arms and torsos or pistons, wheels, and springs—being put to work to realize otherwise impossible fantasies: cathedrals, moon shots, transcontinental railways, and on and on. Certainly, poetic technologies almost invariably have something terrible about them; the poetry is likely to evoke dark satanic mills as much as it does grace or liberation. But the rational, bureaucratic techniques are always in service to some fantastic end.

From this perspective, all those mad Soviet plans—even if never realized—marked the high-water mark of such poetic technologies. What we have now is the reverse. It's not that vision, creativity, and mad fantasies are no longer encouraged. It's that our fantasies remain free-floating; there's no longer even the pretense that they could ever take form or flesh. Meanwhile, in the few areas in which free, imaginative creativity actually is fostered, such as in open-source Internet software development, it is ultimately marshaled in order to create even more, and even more effective, platforms for the filling out of forms. This is what I mean by "bureaucratic technologies": administrative imperatives have become not the means, but the end of technological development.

Meanwhile, the greatest and most powerful nation that has ever existed on this earth has spent the last decades telling its citizens that we simply can no longer contemplate grandiose enterprises, even if—as the current environmental crisis suggests—the fate of the earth depends on it.

So what, then, are the political implications?

First of all, it seems to me that we need to radically rethink some of our most basic assumptions about the nature of capitalism. One is that capitalism is somehow identical to the market, and that both are therefore inimical to bureaucracy, which is a creature of the state. The second is that capitalism is in its nature technologically progressive. It would seem that Marx and Engels, in their giddy enthusiasm for the industrial revolutions of their day, were simply wrong about this. Or to be more precise: they were right to insist that the mechanization of industrial production would eventually destroy capitalism; they were wrong to predict that market competition would compel factory owners to go on with mechanization anyway. If it didn't happen, it can only be because market competition is not, in fact, as essential to the nature of capitalism as they had assumed. If nothing else, the current form of capitalism, where much of the competition seems to take the form

of internal marketing within the bureaucratic structures of large semi-monopolistic enterprises, would presumably have come as a complete surprise to them.

Defenders of capitalism generally make three broad historical claims: first, that it has fostered rapid scientific and technological development; second, that however much it may throw enormous wealth to a small minority, it does so in such a way that increases overall prosperity for everyone; third, that in doing so, it creates a more secure and democratic world. It is quite clear that in the twenty-first century, capitalism is not doing any of these things. In fact, even its proponents are increasingly retreating from any claim that it is a particular good system, falling back instead on the claim that it is the only possible system —or at least, the only possible system for a complex, technologically sophisticated society such as our own.

As an anthropologist, I find myself dealing with this latter argument all the time.

SKEPTIC: You can dream your utopian dreams all you like, I'm talking about a political or economic system that could actually work. And experience has shown us that what we have is really the only option here.

ME: Our particular current form of limited representative government—or corporate capitalism—is the only possible political or economic system? Experience shows us no such thing. If you look at human history, you can find hundreds, even thousands of different political and economic systems. Many of them look absolutely nothing like what we have now.

SKEPTIC: Sure, but you're talking about simpler, small-scale societies, or ones with a much simpler technological base. I'm talking about modern, complex, technologically advanced societies. So your counterexamples are irrelevant.

ME: Wait, so you're saying that technological progress has actually limited our social possibilities? I thought it was supposed to be the other way around!

But even if you concede the point, and agree that for whatever reason, while a wide variety of economic systems might once have been equally viable, modern industrial technology has created a world in which this is no longer the case—could anyone seriously argue that current economic arrangements are also the only ones that will ever be viable under any possible future technological regime as well? Such a statement is self-evidently absurd. If nothing else, how could we possibly know?

Granted, there are people who take that position—on both ends of the political spectrum. As an anthropologist and anarchist, I have to deal fairly regularly with "anticivilizational" types who insist not only that current industrial technology can only lead to capitalist-style oppression, but that this must necessarily be true of any future technology as well: and therefore, that human liberation can only be achieved by a return to the Stone Age. Most of us are not such technological determinists. But ultimately, claims for the present-day inevitability of capitalism have to be based on some kind of technological determinism. And for that very reason, if the ultimate aim of neoliberal capitalism is to create a world where no one believes any other economic system could really work, then it needs to suppress not just any idea of an inevitable redemptive future, but really any radically different technological future at all. There's a kind of contradiction here. It cannot

mean convincing us that technological change has come to an end—since that would mean capitalism is not really progressive. It means convincing us that technological progress is indeed continuing, that we do live in a world of wonders, but to ensure those wonders largely take the form of modest improvements (the latest iPhone!), rumors of inventions about to happen ("I hear they actually are going to have flying cars pretty soon"), even more complex ways of juggling information and imagery, and even more complex platforms for the filling out of forms.

I do not mean to suggest that neoliberal capitalism—or any other system—could ever be permanently successful in this regard. First, there's the problem of trying to convince the world you are leading the way in terms of technological progress when you are actually holding it back. With its decaying infrastructure and paralysis in the face of global warming, the United States is doing a particularly bad job of this at the moment. (This is not to mention its symbolically devastating abandonment of the manned space program, just as China revs up its own.) Second, there's the fact that pace of change simply can't be held back forever. At best it can be slowed down.

Breakthroughs will happen; inconvenient discoveries cannot be permanently suppressed. Other, less bureaucratized parts of the world —or at least, parts of the world with bureaucracies that are not quite so hostile to creative thinking—will, slowly, inevitably, attain the resources required to pick up where the United States and its allies have left off. The Internet does provide opportunities for collaboration and dissemination that may eventually help break us through the wall, as well. Where will the breakthrough come? We can't know. Over the last couple years, since the first version of this essay saw print, there has been a whole spate of new possibilities: 3-D printing, advances in materials technologies, self-driving cars, a new generation of robots, and as a result, a new spate of discussion of robot factories and the end of work. There are hints, too, of impending conceptual breakthroughs in physics, biology, and other sciences, made all the more difficult because of the absolute institutional lock of existing orthodoxies, but which might well have profound technological implications as well.

At this point, the one thing I think we can be fairly confident about it is that invention and true innovation will not happen within the framework of contemporary corporate capitalism—or, most likely, any form of capitalism at all. It's becoming increasingly clear that in order to really start setting up domes on Mars, let alone develop the means to figure out if there actually are alien civilizations out there to contact—or what would actually happen if we shot something through a wormhole—we're going to have to figure out a different economic system entirely. Does it really have to take the form of some massive new bureaucracy? Why do we assume it must? Perhaps it's only by breaking up existing bureaucratic structures that we'll ever be able to get there. And if we're going to actually come up with robots that will do our laundry or tidy up the kitchen, we're going to have to make sure that whatever replaces capitalism is based on a far more egalitarian distribution of wealth and power—one that no longer contains either the super-rich or desperately poor people willing to do their housework. Only then will technology begin to be marshaled toward human needs. And this is the best reason to break free of the dead hand of the hedge fund managers and the CEOs—to free our fantasies from the screens in which such men have imprisoned them, to let our imaginations once again become a material force in human history.

Reflections: An Overview of the Roots of Social Ecology – Murray Bookchin

he extent to which radical versions of environmentalism underwent sweeping metamorphoses and evolved into revolutionary ideologies when the New Left came of age is difficult to convey to the present generation, which has been almost completely divorced from the ebullient days of the New Left, not to speak of all the major problems in classical socialism, especially in its Marxist form. These changes burden us to this very day.

In fact, the way in which the New Left initially reacted to my writings on social ecology, even to such manifesto-type articles as my "Ecology and Revolutionary Thought"(1964), was very similar to the way my comrades of the Old Left would have reacted in the 1930s. Perhaps the most sophisticated leftist "movement" of the sixties—and certainly the most arrogant, namely, the French Situationists and their American hangers-on—witlessly denounced me as "Smokey the Bear"(a childlike symbol of the US Forest Service!), so irrelevant was the issue of humanity's place in the natural world to the Left of the sixties. Accordingly, I was asked repeatedly where the "class struggle" was located in my writings—as though the "class struggle" was not implicit in everything I wrote!—after which I was lectured on how Marx and Engels were "really" firm adherents of the very views for which I had been denounced a few years earlier. My dogmatic opponents of the Left began to shift their ground by trying to fit environmental issues into such frameworks such as the importance of conservation in Marx and Engels's writings. In short, the Left had been oblivious to ecological issues, which were merely regarded as a "petty bourgeois" endeavor to redirect public attention away from a hazy need to abolish capitalism pure and simple!

This criticism, to be sure, was not without a certain measure of truth. Anything resembling a socially oriented ecology, such William Vogt's Our Plundered Planet in the fifties and especially Rachel Carson's Silent Spring in 1962, was more concerned with the impacts of human population growth and the loss of wildlife in an increasingly industrialized world than with the material welfare of humanity and the impact of hierarchy on attempts to create a rational society. In some respects, ecologists were inspired by the reactionary motifs raised by Ernst Haeckel, who created the word "ecology" in the 1880s, notably the harm produced by "humanity" on the planet rather than the effects of the capitalist system in producing ostensibly "biological problems." Although Carson attacked the chemical industry for promoting the use of toxic pesticides, perceptive readers could see that she was more concerned with their impact on birds than on people. Nor did she and other ecological critics examine the socially and negatively systemic sources that produced a growing disequilibrium between nonhuman nature and society. She and her fellow ecological critics often seemed to think in terms of an abstract "humanity" (whatever that socially ambiguous word means) as distinguished from classes. To Carson and her admirers, it was not a specific social order—namely, capitalism and entrepreneurial rivalry—that was responsible for the ecological destruction that was undermining the biosphere but "immoral" human behavior.

By contrast, social ecology completely inverted the meaning and implications of society's interaction with the natural world. When I first began to use the rarely employed term "social ecology" during 1964 in my essay, "Ecology and Revolutionary Thought," I emphasized that the

idea of dominating nature has its origins in the very real domination of human by human—that is, in hierarchy. These status groups, I insisted could continue to exist even if economic classes were abolished.

Secondly, hierarchy had to be abolished by institutional changes that were no less profound and far reaching than those needed to abolish classes. This placed "ecology" on an entirely new level of inquiry and praxis, bringing it far above a solicitous, often romantic and mystical engagement with an undefined "nature" and a love-affair with "wildlife." Social ecology was concerned with the most intimate relations between human beings and the organic world around them. Social ecology, in effect, gave ecology a sharp revolutionary and political edge. In other words, we were obliged to seek changes not only in the objective realm of economic relations but also in the subjective realm of cultural, ethical, aesthetic, personal, and psychological areas of inquiry.

Most fundamentally, these relations exist at the very base of all social life: notably, the ways in which we interact with the natural world, especially through labor, even in the simplest forms of society, such as tribal and village stages of social formation. And certainly, if we had major negative ecological disequilibria between humanity and the natural world which could threaten the very existence of our species, we had to understand how these disequilibria emerged; what we even meant by the word "nature;" how did society emerge out of the natural world; how did it necessarily alienate itself from elemental natural relations; how and why did basic social institutions such as government, law, the state, even classes emerge dialectically from each other before human society came into its own; and in ways that went beyond mere instinct and custom, not to speak of patricentricity, patriarchy, and a host of similar "cultural" relations whose emergence are not easily explained by economic factors alone.

But, it would be an error to view the foregoing presentation of what I would call a minimal account of social ecology as the only theoretical source by which one can teach a course on the subject. I did not develop social ecology only because I was disturbed by the "nature versus society" problem, although it was never far from my mind. Fundamental to my development of social ecology is a crisis that developed in socialist theory itself, one that I regard as unresolvable in a strictly conventional Marxist or anarchist framework—or to use the most all-encompassing phrase of all: proletarian socialism.

This was a painful problem for me to cope with because I did not come to a belief in proletarian socialism as a result of an academic storm in a teacup. I was a very passionate participant in what I thought was a revolutionary labor movement, notably as a member of the Communist youth movement early in the 1930s and as result of a thorough training in Marxism and Bolshevism. I became a rank-and-file leader of the Young Communist League as early as 1933 and was militantly loyal to its ultra-revolutionary program (the reckless insurrectionism promulgated by the Communist International in 1928, or so-called "Third Period" line). Stalin had yet to make his reputation as the major figure that he became in the late thirties; accordingly, my comrades and I of that period never regarded ourselves as "Stalinists" but simply as committed Communists or Marxists who adhered to Lenin's revolutionary views.

As a result, I was thoroughly, even intensively trained in classical Marxism. This background provided me with a unique insight into problems that, while forgotten at present by young radicals, haunts all of their social projects. Born when the Russian Revolution was still a recent event; when Makhno was still carrying on his guerrilla war in Ukraine; when Lenin, Trotsky, and nearly all the major theorists and activists of the first three decades of the century were still fairly young men; I had the rare chance to imbibe all the fundamental issues and live through most of the great civil conflicts of the era—from the still buoyant aftermath of the Russian Revolution to the tragic outcome of the Spanish Revolution and Civil War of 1937 to 1939. By the outbreak of the Second World War, I was well versed in the issues the war raised for my generation early in the century.

Again, it is difficult to convey to young people, today, how differently proletarian socialists thought and the ideals to which they were committed prior to 1950, which I regard as the year in which proletarian socialism was faced by its most decisive crisis. What cannot be emphasized too strongly is that all of us who survived the ideological debacle produced by the war had to deal with the complete failure of all the prognoses we held five years earlier. Almost all who you care to single out from the interwar period (1917-1940), be it a Lenin, a Trotsky (in my earnest opinion, the most optimistic and the most competent theorist of the period), even going back in time to Rosa Luxemburg, Karl Liebknecht, Franz Mehring and the like, were absolutely convinced that capitalism was in its "death throes." The most widely used formulation during this stormy period—far more insurgent than the often pseudo-revolutionism of the sixties—was the expression that capitalism (as I have already observed) was "moribund," or facing the imminent certainty of "collapse." Nothing seemed more evident at the time than the apocalyptic belief that we were witnessing the "last days" of bourgeois society, notwithstanding the fact that fascism was on the march throughout Europe and that proletarian socialist ideology was waning and facing defeat.

The outbreak of the Second World War left no doubt in our minds that the conflict would end in socialist revolutions—or else it was faced with barbarism. And, by barbarism, we meant the expansion of Nazism—of mass starvation, ethnic extermination, concentration camps, a monstrous totalitarian state, and mass graves throughout Europe, if not America and Asia. If socialism did not end the war by producing a new society, barbarism was a historic inevitability. For us, the victory of socialism was a near certainty, for it was inconceivable that Europe, in particular, could go through the mass slaughter that marked the First World War without producing successful proletarian revolutions. Barbarism was the only alternative to a failure by the working class. To a man like Trotsky, who Stalin had killed in the year that saw the outbreak of the world conflict, should barbarism become established in the world, we would have to revise all the expectations provided by Marxism and adopt a historically new ideological perspective.

As we know after more than a half century, we were wrong, indeed terribly so. Neither socialism nor fascism emerged from the war, but, to our amazement, liberal capitalism—with its welfare state and the extension of "bourgeois democracy" in most of Western Europe and the United States. Indeed, capitalism stabilized itself in the historic sense that a "cold war" provided the framework for thinking out social problems—a framework to which the masses clung for nearly fifty years. Capitalism, in short, managed to stabilize itself to a point where it was able to avoid any major economic, not to speak of any social crisis. The New Left, while retaining many features of the

Old Left, essentially tried (and failed) to create a cultural "crisis" as a substitute for a revolutionary one—which, as we now know, became a new industry and a commercial success in its own right.

Moreover, capitalism, continued to deepen its hold on society on a scale and to an extent it had never done during the course of its history. All the vestigial features of pre-capitalist society with their monarchical, quasi-feudal, agrarian and craft strata that were still prevalent in Germany, France, and, at least, widespread in England in 1914 gave way, unevenly to be sure, to huge industrial corporations, mass production, the mechanization of all aspects of the economy, widespread commodification at the very base of economic life and monopolization and global accumulation at its summits—i.e. the spread of capitalism into every niche of social life. The concept of "Fordism" was quite known to the Old Left long before it was adopted by New Left academics under such old names as "mass production" and "commodification."

Finally, the proletariat not only dwindled vastly in numbers (contrary to all of Marx's expectations) but also in class-consciousness. Workers began to lose their sense of class identity, even began to see themselves as property owners, and significantly altered their social expectations. Home ownership, the acquisition of land, cars, and most significantly, stock ownership now became commonplace. Workers' children were expected to go to colleges and universities, or, least, enter the professions or create self-employed enterprises. So vastly had class solidarity waned that the once-sturdy proletariat began to vote for conservative parties and join with reactionaries in opposing environmental conservation, gender equality, immigration from impoverished countries, ethnic equality, and similar issues. Paris's famous prewar 1940 "red belt," which famously gave its votes to the French Communists as the embodiment of the Russian Revolution in Western Europe, found itself voting, often enthusiastically, for the neo-fascism of the French reactionary, Jean-Marie Le Pen.

Notwithstanding the multitude of "breakdown" theories that Marxists and even anarchists advanced during the interwar period, capitalism has proven to be more sturdy and robust during the past fifty years than it was over the course of its entire history. Not only did commodification—its most salient feature—spread throughout the entire world, but it was even spared the recurrence of its notorious "periodic crises" or "business cycles" which reminded the world that a market economy is inherently unstable. Indeed, contrary to all the expectations that followed from Marx's theories of social life-cycles, the supposition that capitalism would become an obstacle to the development of technology—another salient feature of Marx's "moribund" society—proved to be nonsense. As a force for advances in industry and technical sophistication, capitalism exhibits incredible vitality—notwithstanding Marx's prediction that it would soon become incapable of technical innovation and change. Indeed, all the features that were to mark a "moribund" economy have now appeared in reverse: unending technological advances, the absence of the heralded "pauperization" of the working class in the classical areas of capitalist development (England, France, western Europe generally, and the United States), the disappearance of chronic economic crises, and the waning of class consciousness.

By the 1950s, it was self-evident that Marxist (and anarchist) "breakdown" scenarios were palpable nonsense. The notion that the death of capitalism owing to an "economic imperative," such as the "decline in the rate of profit" (a theoretical construct of Volume III of Capital)

constituted a basic explanation for the self-destruction of capitalism was completely untenable. The end of the Second World War brought neither barbarism nor socialism but rather an ideological "vacuum," so to speak, that threatened, like a huge black hole, to extinguish the veracity of Marx's entire theoretical corpus. Capitalism, I would like to reiterate, had recovered from the war, as I have noted, with unprecedented resiliency and extended its grip on society with unprecedented tenacity. As the middle of the fifties came into view, nearly all the monarchies, their political and bureaucratic underpinnings; the extensive craft, professional, and agrarian strata that barely a generation earlier had linked the Western European economy with its feudal past—virtually all had been effaced or divested of the authority they enjoyed a generation earlier. Gone were the Prussian Junkers who survived the First World War, the tsars, dukes, and barons who peopled the upper classes of central and southern Europe, the status groups that presided over the academies well into the thirties, and the like. What the German Kaiser and, later, Hitler tried to achieve with terrible weapons and millions of corpses in 1914 and 1940, the German Bundesrepublik achieved with bundles of Deutsche Marks and, more recently, a patina of pacifism!!

It cannot be emphasized too strongly that, in the absence of an imperative to challenge the desirability of a capitalistic society, and no less importantly, the need to demonstrate that capitalism's death in the foreseeable future was "inevitable," no objective reason existed for the abolition of bourgeois society. Marx, at least, had satisfied this need with an economic imperative, namely, an immense body of theory (unparalleled in its scope and historical knowledge). As I have noted, this theory was based on such precepts as a chronic crisis produced by the tendency of the rate of profit to decline and by a structurally sophisticated class analysis that inevitably pitted a proletarian majority of an industrialized country against a dwindling number of capitalists. By the 1950s, however, Marxism revealed for all who have eyes to see, that its traditional imperative was completely unsound when compared with the realities of the postwar world, nor could its economic imperative be renovated to meet the challenges posed by the last half of the twentieth century.

It was out of the failure of Marx's economic imperative that social ecology was born—not solely because of the impact of pollution, urban degradation, toxic food additives, and the like. When, in 1950, I wrote my almost book length article, "The Problem of Chemicals in Food," in No. 10 of Contemporary Issues, the dangers to public health posed by the chemicalization of food by pesticide residues, preservatives, coloring matter, and the like were still relatively minor issues. The problem of nuclear fallout, the vast number and quantity of pollutants that were to threaten the health of many millions of people, and, later, in 1964, the hazard to the world's climate created by carbon dioxide, were not immediate issues or widely foreseeable ones. The apocalyptic nature of the 1950 article was dismissed by my critics as "wild and reckless" attacks upon the existing society. Actually, I was trying to provide a viable substitute for Marx's defunct economic imperative, namely an ecological imperative that, if thought out (as I tried to do in The Ecology of Freedom) would show that capitalism stood in an irreconcilable contradiction with the natural world. Nearly all my articles and books—such as Our Synthetic Environment (1962), followed two years later by my widely circulated article, "Ecology and Revolutionary Thought," and a companion article, "Toward a Liberatory Technology," (1965)—were guided primarily by this project.

I should note that it was in “Ecology and Revolutionary Thought” that I used the words, “social ecology” for the first time and began to sketch out the complex body of ideas that ultimately reached their elaboration in The Ecology of Freedom, two decades later. Let me be quite outspoken: it was not an unbridled passion for wildlife, wilderness, organic food, primitivism, craft-like methods of production, villages (as against cities), “localism,” a belief that “small is beautiful”—not to speak of Asian mysticism, spiritualism, naturism, etcetera—that led me to formulate and promote social ecology. I was guided by the compelling—indeed, challenging—need to formulate a viable imperative that doomed capitalism to self-extinction. As the thirties and the war revealed, it was not simply the class war between the proletariat and the capitalist class—driven almost exclusively by economic forces and resulting from the concentration of capital—that were destined to destabilize capitalism and produce a revolution. More fundamentally, the crisis produced by capitalism’s “grow or die” imperative could be expected to drive society into a devastating contradiction with the natural world. Capital, in effect, would be compelled to simplify all the ecosystems on whose complexity evolution depended. Driven by its competitive relations and rivalries, capitalism would be obliged to turn soil into sand, the atmosphere and the planet’s waterways into sewers, and warm the planet to a point where the entire climatic integrity of the world would be radically altered because of the greenhouse effect.

In short, precisely because capitalism was, by definition, a competitive and commodity-based economy, it would be compelled to turn the complex into the simple and give rise to a planet that was incompatible environmentally with advanced life forms. The growth of capitalism was incompatible with the evolution of biotic complexity as such—and certainly, with the development of human life and the evolution of human society.

What is important to see is that social ecology thus revealed a crisis between the natural world and capitalism that was, if anything, more fundamental than the crisis that was imputed to the falling rate of profit and its alleged consequences. Moreover, social ecology opened the very real question of the kind of society that would have to follow the abolition of a capitalist economy. Self-styled Marxists (in all fairness, unlike Marx and Engels) made a virtue out of a centralized, bureaucratically planned, and a highly technocratic ideal of progress, based on an urban and mechanistic culture that was almost a parody of Corbusier’s cityscapes.

Social ecology tried to fill the gap between the industrial and agrarian worlds, not by condemning machinery, mass production, or even industrial agriculture. My “Toward a Liberatory Technology” was deprecated by anarchists and Marxists alike: the former because the article celebrated the use of new gardening machines as a substitute for backbreaking toil; the latter precisely because it was “too utopian” in its aspirations. Frankly, I regarded both of my supposed “failings” as real virtues that, with quality production in all spheres of economic life, freed humanity from the yoke of toil and a technocratic world. Moreover, there were aspects of the past which, given modern technics and means of communication were desiderata because they could lighten work and vastly increase productivity, without which humanity would be afflicted with fears of material scarcity. Such technological advances were also needed to provide sufficient free time for active participation in public affairs. Let me add, again, that my critics—many of whom were later to high-jack my alleged “failings”—read “could” to mean “would,” and pompously

declared that if "post-scarcity" simply meant we already had tremendous technological advances, why were we still beset with poverty and exhausting toil? As though capitalism, like a slot machine, "would" always deliver the most optimal returns on the goodies its technology could produce! Typically, they failed to observe that I had repeatedly warned my readers that almost nothing could emerge from within the context of a market economy that was not tainted by the pathologies of competition, rivalry, and, quite bluntly, pure and simple greed!

By contrast, social ecology's ecological imperative—the contradiction between a competitive society and the natural world—is not simply theoretical. By the eighties, it had been tested by the massive degradation that is occurring in the social as well as the natural world. Speaking for myself, I am astonished by the rapid onset of the greenhouse effect, which, in 1964, I predicted in "Ecology and Revolutionary Thought," as a possibility that would require two or more centuries to unfold. Yet, as early as the eighties and nineties, the contradiction between capitalism and the natural world was becoming a very visible reality. Thereafter, the greenhouse effect and other destructive imbalances have assumed proportions that even outweigh more "commonplace" problems such as soil erosion and waste disposal.

This philosophy forms the basis for an educative outlook that yields a lengthy dialectical history and exposition of the phases of human development as it emerges out from natural evolution into social evolution. The philosophy of social ecology centers around a dialectical unfolding of a "legacy of freedom" that not only intertwines but interacts with a "legacy of domination," and includes the evolution of a concept of justice that leads into an ever-expanding concept of freedom, of scarcity into post-scarcity, of folkdom into citizenship, of hierarchy into class, and, hopefully, a growing horizon of freedom (whose termination, if any, we are not yet equipped to foresee), yielding libertarian municipalities and institutions. Taken together, as a whole, this educative outlook forms the basis for a practical theory of politics.

We are now living not only in a different century that the Institute for Social Ecology was founded—the ISE was founded, I would remind you, in 1974, nearly thirty years ago. I would sound to young people today as an alien enterprise from a very different world than the one that exists today. The world I knew still had a workers' movement in the US and Europe, and the issues it had to confront differ qualitatively from those that have emerged in the past two decades.

Yet it would be unpardonable if we forgot that socialism was meant to be a rational society, not a replication of Stalinism and totalitarianism. Nor can we be permitted to forget that it will require a profound social imperative—an ecological imperative, in my view—to move this mass, even lethargic society along rational lines. We must always remember that socialism will come about as the result of logical necessity, the product of deep-seated and compelling forces for social change, not simply "good vibes." To give these precepts a lived meaning, we shall have to create an educational vanguard to keep the terrible pathologies of our day under control, at the vary least, and abolish them at the very most.

For such demands upon our energy and our intelligence, our educational activities must result in a movement, not simply in a lifestyle that celebrates its "freedom" in a closeted community at a distance from real centers of activity and conflict. I cannot emphasize enough that our education,

be it at the ISE or among “affinity groups,” will be little more than a form of self-indulgence if it is restricted to our minds, completely removed from an active life.

I would be the first to acknowledge that action is only possible when there is a real, dissident public life. For the present, I see no widespread inclination to give reality to a movement for libertarian municipalism, which, at the turn of the new century, lies dormant as a prospect for a new politics. Marx once perceptively noted in his early writings that not only must the Idea follow reality, but also reality must follow the Idea. This aphorism might well be regarded as a recognition of the Hegelian notion that freedom is a recognition of necessity in the sense that we need sufficient preconditions to produce the most effective conditions for social change. When this is not so, the most brilliant of ideas lie almost silently in wait for society itself to ripen and permit the struggle for freedom to germinate. It is then that we can give to education a priority that defies all false appeals to activism for its own sake.

But one proviso must be voiced: ideas are only true when they are rational. Today, when rationality and consistency are deprecated in the name of postmodernist chic, we carry a double burden of trying to sustain, often by education alone, reason against irrationalism, and to know when to act as well as how to do so. In such cases, let me note that education, too, is a form of activism and must always be cultivated as such.

The Future of the Left – Murray Bookchin

By the beginning of the twentieth century, the Left envisioned itself as having reached an extraordinary degree of conceptual sophistication and organizational maturity. Generally, what was called leftism at that time was socialist, influenced to varying degrees by the works of Karl Marx. This was especially the case in Central Europe, but socialism was also intermixed with populist ideas in Eastern Europe and with syndicalism in France, Spain, and Latin America. In the United States, all of these ideas were melded together, for example, in Eugene V. Debs’s Socialist Party and in the Industrial Workers of the World (IWW).

On the eve of World War I, leftist ideas and movements had become so advanced that they seemed positioned to seriously challenge the existence of capitalism, indeed, of class society as such. The words from the “Internationale,” “Tis the final conflict,” acquired a new concreteness and immediacy. Capitalism seemed faced with an insurgency by the world’s exploited classes, particularly the industrial proletariat. Indeed, given the scope of the Second International and the growth of revolutionary movements in the West, capitalism appeared to be facing an unprecedented, international social upheaval. Many revolutionaries were convinced that a politically mature and well-organized proletariat could finally take conscious control over social life and evolution to satisfy, not the particularized elitist interests of a propertied minority class, but the general interests of the majority.

The “Great War,” as it was called, actually did end amid socialistic revolutions. Russia established a “proletarian dictatorship,” premised ostensibly on revolutionary Marxist principles. Germany, with the largest and most ideologically advanced industrial proletariat in Europe, went through three years of Marxist-influenced revolutionary upheaval, while Bavaria, Hungary, and other places experienced short-lived insurgencies. In Italy and Spain, the end of the war saw the

emergence of great strike movements and near-insurrections, although they never reached a decisive revolutionary level. Even France seemed to be teetering on revolution in 1917, when entire regiments at the Western Front raised red flags and tried to make their way to Paris. Such upheavals, which recurred into the 1930s, appeared to support Lenin's view that a "moribund" capitalism had finally entered into a period of war and revolution, one that in the foreseeable future could end only with the establishment of a socialist or communist society.

By this time, moreover, major intellectual innovators, from Diderot and Rousseau through Hegel and Marx to an assortment of libertarian rebels, had brought secular and radical ideologies to a point where, sorted into a logical whole, they provided the framework for a truly coherent body of ideas that gave a rational meaning to historical development, combining a due recognition of humanity's material needs with its hopes for intellectual and social emancipation. For the first time, it seemed, without recourse to divine or other archaic nonhuman forms of intervention, humanity would finally be able to draw upon its own advancing intellectuality, knowledge, virtues, and unique capacity for innovation, to create a new world in which all the conditions would exist to actualize its potentiality for freedom and creativity. These eminently human goals, embodied in Marx's great theoretical synthesis of the ideas he had drawn from the Enlightenment as well as new ideas he had developed on his own, could be initiated in practice by the downtrodden themselves, who would be driven inexorably by the contradictions of capitalist society into revolution and the establishment of a rational society for humanity as a whole.

I should note that many of my own words—"inexorably," "moribund," "decaying," and "general interests"—are drawn from the literature of early twentieth-century leftist theorists and movements. Yet, whatever may be the limits of this literature and its writers—as we, in the new millennium, are now privileged to see in retrospect—this sweeping language was not the product of mere sloganeering; it was derived from an integrated and coherent leftist outlook and culture that appeared on the eve of the Great War. This outlook and culture formed what we can properly call a classical body of universalist ideas, continually enlarged by the generations that followed the French Revolution of 1789 to 1794. In the years that passed, this body of ideas was steadily enlarged by experience and succeeded in mobilizing millions of people into international movements for human emancipation and social reconstruction.

Quite obviously, the Enlightenment goals and Lenin's prognoses, with their promise of successful socialist revolutions, were not to be realized in the twentieth century. Indeed, what has occurred since the midpoint of the twentieth century is a very different development: a period of cultural and theoretical decadence so far as revolutionary ideas and movements are concerned; a period of decomposition, in fact, that has swept up nearly all the philosophical, cultural, ethical, and social standards that the Enlightenment had produced. For many young people who professed to hold a radical outlook in the 1960s and 1970s, leftist theory has shriveled in scope and content to the level of spectatorial aesthetics, often focused on the scattered works of people like the indecisive critic Walter Benjamin, the postmodernist Jacques Derrida, or the constipated structuralist Louis Althusser, as social theory has retreated from the lusty debating forums of 1930s socialism to the cloistered seminar rooms of contemporary universities.

Now that the twentieth century has come to a close, we are justified in asking, Why has humanity's emancipation failed to achieve fruition? Why, in particular, has the proletariat failed to make its predicted revolution? Indeed, why did the once-radical Social Democrats fail from their very inception to achieve even a majority vote in centers such as Germany? Why did they surrender so tamely to Hitler in 1933? The German Communists, of course, were simply shunted aside after 1923, assuming they could even be taken seriously in that year, except as contrived targets for demagogic propagandistic purposes to frighten the middle classes with the menace of social disorder.

How, moreover, did capitalism manage to free itself from the "chronic economic crisis" in which it seemed hopelessly mired during the 1930s? Why, especially after World War II, did it produce advances in technics so dazzling that bourgeois society is now undergoing a permanent "Industrial Revolution" whose results are difficult to foresee? Finally, why did it come to pass that, following the profound economic and social crises of the 1930s, capitalism emerged from a second world war as a more stable and more socially entrenched order than it had ever been in the past?

None of these events, so important in the predictive calculations of revolutionary Marxists, have been adequately explained in a fundamental and historical sense, notably the progressive role that Marx assigned to capitalism in his "stages theory" of history. Instead, for years, Marxists largely expended their polemical energy in throwing epithets at each other and at other labor movements for their "betrayals" without asking why Marxism was so vulnerable to betrayal in the first place. In more recent years, Marxists have tried to appropriate fragments of ideas that belong to once-despised utopian ideologies, such as Fourierism (Marcuse, to cite only one example) or to other ideologies, such as syndicalism, anarchism, ecology, feminism, and communitarianism, appropriating ill-fitting ideological tenets from one or the other to refurbish their limited view of a changing bourgeois reality until what passes for Marxism today is often a pastiche of fragments patched together with planks from basically alien ideologies.

How, in short, did it come to pass that the classical era, marked by its coherence and unity in revolutionary thought and practice, gave way to a completely decadent era in which incoherence is celebrated, particularly in the name of a postmodernism that equates chaotic nihilism with freedom, self-expression, and creativity—not unlike the chaos of the marketplace itself? We can answer these questions because we now enjoy over a half-century of hindsight. What the past fifty years have shown us is that the uniquely insurgent period between 1917 and 1939 was not evidence of capitalist morbidity and decline, as Lenin surmised. Rather, it was a period of social transition. During those decades, the world was so torn by circumstantially created tensions that Lenin's view of capitalism as a dying social order seemed indeed confirmed by reality.

What this classical prognosis and its supporting theoretical corpus did not take into account were various alternative developments that faced capitalism before the outbreak of the Great War and even during the interwar period—alternatives that lay beneath the tumultuous surface of the early twentieth century. The classical Left did not consider other possible social trajectories that capitalism could have followed—and eventually did follow—that would allow for its stabilization. It not only failed to understand these new social trajectories but also failed to foresee, even faintly,

the emergence of new issues that extended beyond the largely worker-oriented analysis of the classical Left.

For one thing, what makes so much of the classical revolutionary prognoses formulated by prewar and wartime socialism seem paradoxical is that the "moribund" period in which many classical leftists anchored their hopes for revolution was still not even a period of "mature" capitalism, let alone one of "dying" capitalism. The era before the Great War was one in which mass production, republican systems of government, and so-called "bourgeois-democratic" liberties were still emerging from a chrysalis of precapitalist forms of craft production and commerce, state structures ruled by royal families and courts, and economies in which ennobled landlords such as the German Junkers, British aristocrats, and Latin Grandees coexisted with a huge, technically backward peasant population. Even where most great estates were owned by bourgeois elements, as in Spain, their management of agriculture was conducted lethargically, emulating the diffident economic habits that characterized parasitic agrarian elites of a precapitalist era. Capitalism, while it was the dominant economy of the United States, Great Britain, Germany, more ambiguously France, and only marginally in other European countries, was still subordinated culturally and even structurally to elite strata, often based on kinship, that were more feudal than bourgeois, and marked by the rentier and militaristic values that distinguished a waning era.

In effect, even modern industry, while becoming central to the development of major nation-states in the early twentieth century, was still anchored in a craft-peasant social matrix. The ownership of land and of small-scale workshops, often family managed, formed the traditional features of social status in a very status-ridden world, such as in England and Germany. It is hard to recall today how low the real status of women was during the early 1900s; how degraded was the status of propertyless, often mendicant workers; how eagerly even substantial capitalists tried to marry into titled families; how feeble were elementary civil liberties in a world that acknowledged the validity of inherited privilege and the authority of monarchs; and how embattled was the industrially regimented proletariat (often removed by a generation or two from village life with its more natural life-ways) in its efforts to merely organize reformist trade unions.

The Great War, a monstrous event that was as much, if not more, the product of dynastic ambitions, military obtuseness, and the awesome authority allowed to preening monarchs as it was of economic imperialism, was not a "historical necessity." An entangled Europe, caught up in Kaiser Wilhelm II's juvenile posturing and dizzying images of German national grandeur, the blind spirit of French revanchisme following the country's loss of Alsace and Lorraine in 1871 to the Wilhelmine Reich, and the naïve nationalism of the masses, whose class internationalism was often more rhetorical than real—all led to a horrible form of trench warfare that should have been unendurable to any civilized people within a few months after it began, let alone for four bloody years. The Deutsche Mark, the postwar German currency and emblematic expression of German capitalism, managed to perform economic prodigies that neither Wilhelm nor Hitler's bayonets could hope to perform during the last century—so different are the alternatives that the postwar era finally revealed!

Yet, ironically, it was not the battlefront in the Great War that generated the revolutions of 1917–18; it was the rear, where hunger managed to do what the terrifying explosives, machine guns,

tanks, and poison gas at the front never quite succeeded in achieving—a revolution over issues such as bread and peace (in precisely that order). It is breathtaking to consider that, after three years of constant bloodletting, mutilation, and incredible daily fear, the German strikes of January 1918 that had the pungent odor of revolution actually subsided, and the German workers remained patiently quiescent when General Ludendorff's spring and summer offensives of that year gained substantial ground from French and British troops in the West to the "greater glory" of the Reich. So much for the "revolutionary instincts" of the people, which Bakunin was wont to celebrate. It speaks volumes that, despite the horrors of the Great War, the masses went along with the conflict until it was completely unendurable materially. Such is the power of adaptation, tradition, and habit in everyday life.

Notwithstanding the Russian Revolution, the Great War came to an end without overthrowing European capitalism, let alone world capitalism. The war actually revealed that the classical tradition of socialism was very limited and, in many respects, greatly in need of repair. Understandably, Lenin and Trotsky tried to foreshorten historical development and bring about the likelihood of socialism within their own life spans, although this is less true of Luxemburg and particularly of Marx, who was far more critical of Marxism than his acolytes. Indeed, Marx was at pains to warn that it had taken centuries for feudalism to die and for capitalism to emerge, hence, Marxists should hardly expect that the bourgeoisie would be overthrown in a year, a decade, or even a generation. Trotsky was far more sanguine than Lenin in his conviction that capitalism was "moribund," "decaying," "rotting," and otherwise falling apart, and that the proletariat was growing "stronger," or "more class conscious," or "organized"—but it matters little today to dwell on his expectations and prognoses.

Nevertheless, the Great War, while not completely sweeping the historical slate clean of the feudal detritus that contributed so greatly to its outbreak, left the Western world in a cultural, moral, and political stupor. An era was clearly ending, but it was not capitalism that was faced with imminent oblivion. What was disappearing was the traditional, time-worn status and class system of a feudal past, yet without any fully developed form of capitalism to take its place. With the Great Depression, British landlordism began to enter into hard, even devastating times, but it had not completely disappeared during the 1930s. The Prussian Junkers were still in command of the German army at the beginning of the 1930s and, thanks to von Hindenburg's election as president of the German state, still enjoyed many of the privileges of an established elite early in the Hitler period. But this once-haughty stratum was eventually faced with the challenge of Hitler's Gleichschaltung, the process of social leveling that finally degraded the Prussian officer caste. In the end, it was the Anglo-American and Russian armies that swept the Junkers away by seizing their estates in the East and dissolving them as a socioeconomic entity. France was fighting its last battles as a middle-class republic during the mid-1930s, with Catholic reactionaries and the blooded young fascists of the Croix de Feu, who aspired to an aristocratic Gallicism led by rich and titled leaders.

Thus, the interwar decades were a stormy period of transition between a declining quasi-feudal world, already shattered but not buried, and an emerging bourgeois world, which, despite its vast economic power, had still not penetrated into every pore of society and defined the basic values of

the century. In fact, the Great Depression showed that the pedestrian maxim "money isn't everything" is true when there is no money to go around. Indeed, the Depression threw much of the world, especially the United States, into a disorderly one that resembled its own hectic populist era of the 1870s and 1880s, hence the flare-up of trade unionism, violent strikes, great demonstrations, and "Red" agitation that swept over the American and European continents in the 1930s.

In this socially hyperactive but indecisive period of social tensions between the old and new, when the ruling classes as well as the dominated masses lived in murderous antipathy toward each other, history unlocked the door to revolutionary upheavals. Amid the uncertainty of a tension-filled world, the fulfillment of Marx's dream—a democratic workers' system of government—seemed achievable. As a result of the strife that existed within that interwar period, it appeared that capitalism had collapsed economically and a worldwide movement toward a democratic, possibly libertarian socialist society was achievable. But to create such a society required a highly conscious movement with an able leadership and a clear-eyed sense of purpose.

Tragically, no such movement appeared. Grossly pragmatic bureaucrats such as Friedrich Ebert and Philip Scheidemann, and pedestrian theorists such as Karl Kautsky and Rudolf Hilferding, assumed the deflated mantle of the Socialist International and set its tone up until the rise of German fascism. Shortly afterward, Stalin intervened in every potentially revolutionary situation in Europe and poisoned it to serve Russia's (and his own) interests. The prestige of the Bolshevik revolution, to which this tyrant contributed absolutely nothing and which he defamed when he came to power, was still not sufficiently sullied to allow the classical Left to create its own authentic movements and expand its vision to accord with emerging social issues that reflected changes in capitalism itself.

What must now be acknowledged is that between 1914 and 1945, capitalism was enlarging its foundations with mass manufacture and new industries, not digging its grave as Lenin and Trotsky had opined. Its status as a dominant world economy and society still lay before it in 1917, not behind it. And it would be sheer myopia not to see that capitalism is still industrializing the world—agrarian as well as urban—which is basically what the word "globalization" means. Moreover, it is still eroding the particularisms that divide human beings on the basis of nationalism, religion, and ethnicity. Most of the "fundamentalisms" and "identity politics" erupting in the world today are essentially reactions against the encroaching secularism and universalism of a business-oriented, increasingly homogenizing capitalist civilization that is slowly eating away at a deeply religious, nationalistic, and ethnic heritage. The commodity is still performing prodigies of social erosion in precapitalist cultures, be they for good or bad, such as Marx and Engels described in the first part of The Communist Manifesto. Where sanity and reason do not guide human affairs, to be sure, the good is nearly always polluted by the bad, and it is the function of any serious revolutionary thinker to separate the two in the hope of unearthing the rational tendency in a social development.

At the same time, capitalism is not only homogenizing old societies and remaking them in its urbanized, commodity-oriented image; it is doing the same to the planet and the biosphere in the name of "mastering" the forces of the natural world. This is precisely the "historically progressive"

role that Marx and Engels assigned, in a celebratory manner, to the capitalist mode of production. How "progressive" this process of homogenization is, in fact, remains to be seen. For the present, it behooves us to examine the failure of Marxism and anarchism (arguably the two principal wings of the revolutionary tradition) to deal with the transitional nature of the twentieth century.

In the post–World War II period, the weakest elements in Marx's schema of history, class struggle, capitalist development, and political activity have been subjected to penetrating critical examination. The Marxian canon to the contrary, history, viewed as a whole, cannot be reduced to economic factors as Marx tried to do in his key works, although capitalism may well be mutating Homo sapiens into Homo consumerans and fostering the tendency among masses of people to experience reality as a huge market. Marx's basic views may have provided his acolytes with the necessary or preconditional causes for social development—admittedly material or economic causes—but they failed to explain the enormous role of the efficient causes; the immediate causes, such as culture, politics, morality, juridical practices, and the like (which Marx denoted as a "superstructural") for producing social change.

Indeed, what else besides "superstructural" (particularly moral, religious, and political) factors can explain why the development of capitalism, elements of which had always existed in varying degrees in agrarian and craft economies, was arrested for thousands of years and became a major economy in only one country, England, early in the nineteenth century? Or why revolutions occur only under conditions of complete social breakdown, that is, after a vast body of massively influential superstructural belief systems (often accepted in their time as eternal realities) are shattered. Marx was not oblivious to the extent to which belief systems override bourgeois forces in precapitalist societies, especially in his discussions on the predominance of agrarian values over urban ones in his Grundrisse.Very significantly, Marxists were riddled by conflicts over the status of capitalism at various points in its development, especially during the early twentieth century, when the bourgeoisie faced one of the stormiest periods of its history precisely because capitalism had not fully shed the trappings of feudalism and come "completely into its own," so to speak.

How, for example, was it possible for many Marxists to insist that capitalism was in decline at a time when major technical innovations like mass manufacture, radically new forms of transportation such as the automobile, advances in electrical and electronic machines and goods, and new chemical innovations were occurring in the decade directly following the Great War? Had Marx not written, after all, that "No social order ever perishes before all the productive forces [technology] for which there is room in it have developed"? Could this be said of capitalism in 1914–18 and 1939–45? Indeed, will it ever be said of the capitalist mode of production in the future? In asking these questions, I am not trying to suggest that capitalism will never produce problems that necessitate its overthrow or replacement. My purpose is, rather, to suggest that the problems that may well turn most of humanity against capitalism may not necessarily be strictly economic ones or rooted in class issues.

Arguable as Marx's productivist interpretation of social development and its future may be, it becomes a very forced and artificial, even contorted, explanation of history if it is not greatly modified by the dialectic of ideas, that is, by political and social ideology, morality and ethics, law, juridical standards, and the like. Marxism has yet to forthrightly acknowledge that these

different spheres of life have their own dialectic, indeed, that they can unfold from inner forces of their own and not simply result from a productivist dialectic called the "materialist interpretation of history." Moreover, it has yet to emphasize that a dialectic of ethics or religion can profoundly affect the dialectic of productive forces and production relations. Is it possible, for example, to ignore the fact that Christian theology led logically to a growing respect for individual worth and finally to radical conceptions of social freedom—a dialectic that in turn profoundly influenced social development by altering the way human beings interacted with each other and with the material world?

By the time of the French Revolution, centuries of deeply entrenched ideas on property, such as the enormous esteem that accompanied the ownership of land, were intermingling and modifying seemingly objective social forces, such as the growth of an increasingly capitalistic market. As a result, the exalted image of the independent, often self-sufficient peasant who began to emerge in the wake of the Revolution with his small bit of property and his craft-oriented village, actually inhibited capitalist economic development in France well into the nineteenth century by closing off large parts of the domestic market to commodities mass produced in the cities. The image of the French Revolution as a "bourgeois" revolution that fostered a capitalist development at home is arguably more fictitious than real, although in the long run, it created many preconditions for the rise of the industrial bourgeoisie.

In short, by educing the dialectic of history along overwhelmingly productivist lines, Marx easily deceived himself as well as his most important followers, notably Lenin and Trotsky, about capitalism's morbidity by assuming that the bourgeoisie had finally prepared all the economic preconditions for socialism and hence was ready to be replaced by socialism. What he ignored was that many of the problems, contradictions, and antagonisms he imputed almost exclusively to capitalism were, in fact, the product of lingering feudal traits that society had not shed; moreover, that the seemingly "superstructural" institutions and values that had characterized precapitalist societies played a major role in defining a seemingly predominant capitalist society that was still aborning. On this score, the anarchists were right when they called not so much for the economic improvement of the proletariat as for its moral development as vital to the formation of a free society—improvements Marxists largely brushed aside as issues that fell within the domain of "private life."

Marx and Marxism also fail us when they focus overwhelmingly on the working class, even enhancing its social weight by presumably elevating transparently petty bourgeois elements such as salaried white-collar employees to proletarian status when industrial workers are evidently declining numerically. Nor does the authentic proletariat, which assumed an almost mystical class status in the heyday of Marxism, act as though it is a uniquely hegemonic historical agent in the conflict with capitalism as a system. Nothing proved to be more misleading in the advanced industrial countries of the world than the myth that the working class, when appealed to as an economic class, could see beyond the immediate conditions of its given life-ways—the factory and bourgeois forms of distribution (exchange). It consistently adopted reformist programs designed to gain higher wages, shorter working days, longer vacations, and improved working conditions until thunderous events drove it to revolutionary action, together, it should be added,

with nonproletarian strata. Virtually none of the classical socialist movements, it is worth noting, appealed to the workers as people: as parents, city dwellers, brothers and sisters, and individuals trying to live decent lives in a decent environment for themselves and their offspring.

Most conventional Marxist theorists to the contrary, the worker is first of all a human being, not simply the embodiment of "social labor," definable in strictly class terms. The failure of classical socialism to make a human and civic appeal to the worker—even to seriously consider him or her as more than a class being—created a warped relationship between socialist organizations and their alleged "constituency." Although classical Social Democracy, especially the German Social Democrats, provided workers with a highly varied cultural life of their own, from educational activities to sports clubs, the proletariat was usually boxed into a world bounded by a concern for its most immediate material interests. Even in the pre–World War II cultural centers of the socialists, such as the casas del puebloestablished by the Spanish Socialists, it was fed primarily on discussions of its exploitation and degradation by the capitalist system, which in any case, it experienced daily in factories and workshops. The attempt to redefine the proletariat and make it a majority of a national population lost all credibility when capitalism began to create a huge "salariat" of office employees, managers, salespeople, and an army of service, engineering, advertising, media, and governmental personnel who saw themselves as a new middle class, deeply invested in bourgeois property through stocks, bonds, real estate, pensions, and the like, however minor these may seem by comparison with the big bourgeoisie.

Finally, a very significant failing of Marxism when it came to building a revolutionary movement was its commitment to the statist acquisition and maintenance of parliamentary power. By the late 1870s, Marx and Engels had developed into "Red Republicans," notwithstanding Marx's encomiums to the Parisian Communards and their quasi-anarchist vision of a confederal form of government. What is often ignored is that Marx disclaimed these encomiums shortly before his death a decade later. Doubtless, Marx's vision of a republic was marked by more democratic features than any that existed in Europe and America during his lifetime. He would have favored the right to recall deputies at all levels of the state, as well as minimal bureaucracy and a militia system based on working-class recruits. But none of the institutions he attributed to a socialist state were incompatible with those of a "bourgeois-democratic" state. Not surprisingly, he believed that socialism could be voted into power in England, the United States, and the Netherlands, a list to which Engels years later added France.

In vowing that only insurrection and a complete restructuring of the state were compatible with socialism, Lenin and Luxemburg, among others (especially Trotsky), decidedly departed from Marx and Engels's political ideas in their late years. At least in trying to work within republican institutions, the early Social Democrats were more consistently Marxist than were their revolutionary critics. They viewed the German Revolution of 1918–19 as an indispensable preliminary to the creation of a republican system that would open a peaceful but, more significant, institutionally sound road to socialism. That workers' councils such as the Russian soviets and German Räte were more radically democratic also made them frightening as institutional measures, more akin to anarchism and certainly Bolshevism than to a parliament elected by universal suffrage. Although a younger Marx would have found a state structured around councils

more to his taste, there is little to show in his later writings (apart from his flirtation with the libertarian features of the Paris Commune) that he would have "smashed the state," to use Lenin's terminology, to the point of rejecting parliamentary government.

Does this mean that anarchist precepts, spawned nearly two centuries ago, provide a substitute for Marxism?

After forty years of trying to work with this ideology, my own very considered opinion is that such a hope, which I entertained as early as the 1950s, is unrealizable. Nor do I feel that this is due only to the failings of the so-called "new anarchism," spawned in recent years by young activists. The problems raised by anarchism belong to the days of its birth, when writers like Proudhon celebrated its use as a new alternative to the emerging capitalist social order. In reality, anarchism has no coherent body of theory other than its commitment to an ahistorical conception of "personal autonomy," that is, to the self-willing, asocial ego, divested of constraints, preconditions, or limitations short of death itself. Indeed, today, many anarchists celebrate this theoretical incoherence as evidence of the highly libertarian nature of their outlook and its often dizzying, if not contradictory, respect for diversity. It is primarily by giving priority to an ideologically petrified notion of an "autonomous individual" that anarchists justify their opposition not only to the state but to any form of constraint, law, and often organization and democratic decision-making based on majority voting. All such constraints are dismissed in principle as forms of "coercion," "domination," "government," and even "tyranny"—often as though these terms were coequal and interchangeable.

Nor do anarchist theorists take cognizance of the social and historical conditions that limit or modify the ability to attain "Anarchy," which is often described as a highly personal affair or even an episodic or "ecstatic" experience. Followed to its logical conclusion, indeed to its most fundamental premises, Anarchy is essentially a moral desideratum, a "way of life," as one anarchist put it to me, independent of time or place. Anarchy, we are justified in concluding, emerges from the exercise of pure will. Presumably, when enough wills converge to "adopt" Anarchy, it will simply be like the soil that remains beneath melting snow, as one British anarchist put it. This revelatory interpretation of how Anarchy makes its appearance in the world lies at the core of the anarchist vision. Anarchy, it would appear, has always been "there," as Isaac Puente, the most important theorist of Spanish anarchism in the 1930s, put it, save that it was concealed over the ages by a historically imposed layer of institutions, entrenched experiences, and values that are typified by the state, civilization, history, and morality. Somehow, it must merely be restored from its unsullied past like a hidden geological stratum.

This summary easily explains the emphasis on primitivism and the notion of "recovery" that one so often encounters in anarchist writing. Recovery should be distinguished from the notions of discovery and innovation that modern thinking and rationalism were obliged to counterpose to the premodern belief that truth and virtue in all their aspects were already in existence but concealed by an oppressive or obfuscating historical development and culture. Anarchists could just as easily use this formulation to justify social passivity rather than protest. One had only to let the "snow" (that is, the state and civilization) melt away for Anarchy to be restored, a view that may well explain the pacifism that is so widespread among anarchists throughout the world today.

In recent years, some anarchists have singled out civilization, technics, and rationality as the greatest failings of the human condition and argue they must be replaced by a more primitive, presumably "authentic" culture that eschews all the attainments of history in order to restore humanity's primal "harmony" with itself and an almost mystical "Nature." Insofar as anarchists currently espouse this view, they have actually returned anarchism to its true home after its centuries-long meanderings through the mazes of syndicalism and other basically alien social causes. Proudhon's wistful image of the self-sufficient peasant farm or village, wisely presided over by an all-knowing paterfamilias, is finally recovered; this, I would add, at a time when the world is more interdependent and technologically sophisticated than at any other in history.

Inasmuch as anarchism emphasizes primitivism as against acculturation, recovery as against discovery, autarchy as against interdependence, and naturism as against civilization—often rooting its conceptual apparatus in a "natural," conceivably "basic" ahistorical autonomous ego, freed of the rationalism and theoretical burden of "civilization"—it in fact stands in marked contrast to the real ego, which is always located in a given temporal, technological, cultural, traditional, intellectual, and political environment. Indeed, the anarchist version of the stripped-down, indeed, vacuous, ego disturbingly resembles Homer's description of the lotus eater in the Odyssey, who, while eating the lotus fruit, slips into an indolence of forgetfulness, atemporality, and blissfulness that actually represents the very annihilation of personality and selfhood.

Historically, this "autonomous ego" became the building block that anarchists used to create various movement-type structures that often gave it a highly social and revolutionary patina. Syndicalism, to cite the most important case in point, became the architectural form in which these blocks were most commonly arranged—not as a defining foundation for an anarchist movement but as a highly unstable superstructure. When workers in the closing decades of the nineteenth century became actively involved in socialism, unionism, organization, democracy, and everyday struggles for better living and working conditions, anarchism took on the form of a radical trade unionism. This association was precarious at best. Although both shared the same libertarian ambience, syndicalism existed in sharp tension with the basic individualism that pure anarchists prized, often above—and against—all organizational institutions.

Both ideologies—Marxism and anarchism—emerged at times when industrial societies were still in their infancy and nation-states were still in the process of being formed. While Marx tried to conceptualize small-scale, often well-educated Parisian craftsmen as "proletarians," Bakunin's imagination was caught up with images of social bandits and peasant jacqueries. Both men, to be sure, contributed valuable insights to revolutionary theory, but they were revolutionaries who formulated their ideas in a socially limited time. They could hardly be expected to anticipate the problems that emerged during the hectic century that followed their deaths. A major problem facing radical social thought and action today is to determine what can be incorporated from their time into a new, highly dynamic capitalist era that has long transcended the old semifeudal world of independent peasants and craftsmen; a new era, also, that has largely discarded the textile–metal–steam engine world of the Industrial Revolution, with its burgeoning population of totally dispossessed proletarian masses. Their place has been taken in great part by technologies that can

replace labor in nearly all spheres of work and provide a degree of abundance in the means of life that the most imaginative utopians of the nineteenth century could not have anticipated.

But just as advances in an irrational society always taint the most valuable of human achievements with evil, so too the Industrial Revolution has produced new problems and potential crises that call for new means to deal with them. These new means must go beyond mere protest if they are not to suffer the fate of movements such as the Luddites, who could offer little more than a return to the past by trying to destroy the technical innovations of their era. Any assessment of the revolutionary tradition immediately raises the question of the future of the Left in a social environment that is not only beset by new problems but demands new solutions. What approach can incorporate the best of the revolutionary tradition—Marxism and anarchism—in ways and forms that speak to the kind of problems that face the present? Indeed, in view of the remarkable dynamism of the twentieth century and the likelihood that changes in the new one will be even more sweeping, it now behooves us to speculate about the analyses that will explain its forthcoming development, the kind of crises it is likely to face, and the institutions, methods, and movements that can hope to render society rational and nourishing as an arena for human creativity. Above all, we must think beyond the immediate present and its proximate past by trying to anticipate problems that may lie at least a generation, if not further, beyond a highly transitory present.

What remains very contemporary in Marx's writings, even after a century and a half, is the insight they bring to the nature of capitalist development. Marx fully explored the competitive forces that inhere in the buyer-seller exchange, a relationship that, under capitalism, compels the bourgeoisie to continually expand its enterprises and operations. Ever since the capitalist economy became prevalent over a sizable area of the world, it has been guided by the competitive market imperative of "grow or die," leading to continual industrial expansion and the consolidation of competing concerns into ever-larger, quasi-monopolistic complexes. Would the process of capital concentration culminate in a worldwide economy under the tutelage of a few or of a single corporate entity, thereby terminating the process of accumulation and bringing capitalism to an end? Or would capital expansion (that is, globalization) so level market differentials that the exchange of commodities as a source of accumulation becomes impossible? These were serious topics of discussion during the heyday of classical Marxism. They remain conundrums today.

Today, we can say for certain that existing quasi-monopolistic complexes furiously accelerate the rate at which society undergoes economic and social change. Not only do firms expand at an ever-increasing pace, either annihilating or absorbing their competitors, but the commodities they produce and the resources they devour affect every corner of the planet. Globalization is not unique to modern capitalist industry and finance; the bourgeoisie has been eating its way into isolated and seemingly self-contained cultures for centuries and, either directly or indirectly, transforming them. What is unusual about present-day globalization is the scale on which it is occurring and the far-reaching impact it is having on cultures that once seemed to be insulated from modern commodity production and trade and from nation-state sovereignty. Now the presumably "quaint" traits of precapitalist peoples have been turned into marketable items to titillate Western tourists who pay exorbitant prices to enjoy a presumably "primitive" item or experience.

Marx and his followers considered this process of expanding industrialization and market relations to be a progressive feature of the capitalist "stage" of history, and they expected that it would eventually eliminate all preexisting territorial, cultural, national, and ethnic ties and replace them with class solidarity, thereby removing obstacles to the development of revolutionary internationalism. Commodification, Marx famously emphasized, turns everything solid into air. It once eliminated the economic exclusivity of guilds and other economic barriers to innovation, and it continues to corrode art, crafts, familial ties, and all the bonds of human solidarity—indeed, all the honored traditions that nourished the human spirit.

Marx saw the homogenizing effects of globalization as destructive insofar as they dissolved the meaningful relationships and sentiments that knitted society together; but his formulation was not only a critique. He also saw these effects as progressive insofar as they cleared away precapitalist and particularistic detritus. Today, radicals emphasize that the worldwide invasion of the commodity into society is overwhelmingly destructive. Capitalism (not simply globalization and corporatization) not only turns everything solid into air but replaces earlier traditions with distinctly bourgeois attributes. Implicit in Marx's remarks was the belief that globalized capitalism would provide the future with a clean slate on which to inscribe the outlines of a rational society. But as capitalism writes its message of uniquely bourgeois values, it creates potentially monstrous developments that may well undermine social life itself. It supplants traditional ties of solidarity and community with an all-pervasive greed, an appetite for wealth, a system of moral accounting focused on "the bottom line," and a heartless disregard for the desperation of the poor, aged, and physically disabled.

Not that greed and heartlessness were absent from capitalism in the past. But in an earlier time, the bourgeoisie was relatively marginal and vulnerable to the patronizing outlook of the landed nobility; preindustrial values more or less held capitalists in check. Then the market economy rendered increasingly prevalent an unbridled capitalist spirit of self-aggrandizement and unfeeling exploitation. Naked bourgeois greed and heartlessness, illuminated by the vigilance of great writers such as Balzac and Dickens, produced a wave of revulsion that swept over the people exposed to it. In past epochs, the rich were neither admired nor turned into embodiments of virtue. The honored virtue of most of the precapitalist world, rather, was not self-aggrandizement but self-sacrifice, not accumulating but giving, however much these virtues were honored in the breach.

But today, capitalism has penetrated into all aspects of life. Greed, an inordinate appetite for wealth, an accounting mentality, and a disdainful view of poverty and infirmity have become a moral pathology. Under these circumstances, bourgeois traits are the celebrated symbols of the "beautiful people" and, more subtly, of yuppified baby boomers. These values percolate into less fortunate strata of the population who, depending upon their own resources, view the fortunate with envy, even awe, and guiltily target themselves for their own lack of privilege and status as "ne'er-do-wells."

In this new embourgeoisement, the dispossessed harbor no class antagonisms toward the "rich and beautiful" (a unique juxtaposition) but rather esteem them. At present, poor and middle-class people are less likely to view the bourgeoisie with hatred than with servile admiration; they increasingly see the ability to make money and accrue wealth not as indicative of a predatory

disposition and the absence of moral scruples, as was the case a few generations ago, but as evidence of innate abilities and intelligence. Newsstands and bookstores are filled with a massive literature celebrating the lifestyles, careers, personal affairs, and riches of the new wealthy, who are held up as models of achievement and success. That these "celebrities" of postmodernity bubble up from obscurity is an added asset: it suggests that the admiring but debt-burdened reader can also "make it" in a new bourgeois world. Any obscure candidate can "become a millionaire"—or a multimillionaire—merely by winning in a television game show or a lottery. The myriad millions who envy and admire the bourgeoisie no longer see its members as part of a "class"; they are rather a "meritocracy," who have become, as a result of luck and effort, winners in the lottery of life. If Americans once widely believed that anyone could become the president of the United States, the new belief holds that anyone can become a millionaire or—who knows?—one of the ten richest people in the world.

Capitalism, in turn, is increasingly assumed to be the natural state of affairs toward which history has been converging for thousands of years. Even as capitalism is achieving this splendor, we are witnessing a degree of public ignorance, fatuity, and smugness unseen since the inception of the modern world. Like fast food and quick sex, ideas and experiences simply race through the human mind, and far from being absorbed and used as building blocks for generalizations, they quickly disappear to make room for still newer and faster-moving ideas and experiences of an ever-more superficial or degraded character. Every few years, it would seem, a new generation initiates ostensibly "new causes" that were exhausted only a decade or two earlier, thereby casting into ideological oblivion invaluable lessons and knowledge that are indispensable for a radical social practice. Each new generation has a concomitantly arrogant notion that history began only when it was born; hence, all experiences from the past, even the recent past, are to be ignored. Thus, the struggle against globalization, which was fought for decades under the rubric of anti-imperialism, has been reinvented and renamed.

The problem of lost definition and specificity, of everything being turned into "air," and the disastrous loss of the memory of experiences and lessons vital to establishing a Left tradition, confronts any endeavor to create a revolutionary movement in the future. Theories and concepts lose their dimensions, their mass, their traditions, and their relevance, as a result of which they are adopted and dropped with juvenile flippancy. The chauvinistic notion of "identity," which is the byproduct of class and hierarchical society, ideologically corrodes the concept of "class," prioritizing a largely psychological distinction at the expense of a sociopolitical one. "Identity" becomes a highly personal problem with which individuals must wrestle psychologically and culturally rather than a root social problem that must be understood by and resolved through a radical social approach.

Indeed, the bourgeoisie can easily remedy such a problem by promoting ethnically discriminated employees to upper-level managers and by promoting female lieutenants in the military into majors or generals. Hence the amazing willingness that new enterprises and the media exhibit in selecting blacks and women for high spots in their operations or media presentations. Baby boomer capitalists such as Tom Peters, who season their ideas of nonhierarchical practices in business administration with dashingly anarchic traits, often regard race and gender as archaisms. Colin

Powell has shown that even with an African American as chairman of the Joint Chiefs of Staff, the American military can be as deadly as it needs to be, and Oprah Winfrey has demonstrated that what Americans read or buy needs have no bearing on the race or gender of a television purveyor of those commodities.

The middle and working classes no longer think of the present society as structured around classes. Current opinion holds that the rich are deserving and the poor are not, while an incalculable number of people linger between the categories. A huge section of public opinion in the Western world tends to regard oppression and exploitation as residual abuses, not inherent features of a specific social order. The prevailing society is neither rationally analyzed nor forcefully challenged; it is prudently psychoanalyzed and politely coaxed, as though social problems emerge from erratic individual behavior. Although strident protests explode from time to time, a growing gentility is watering down the severity of social disputes and antagonisms, even among people who profess leftist views.

What is absent in this type of sporadic and eruptive opposition is an understanding of the causal continuities that only serious and, above all, rational explorations can reveal. In the so-called "Seattle rebellion" in late November and early December 1999 against the World Trade Organization, what was at issue was not the substitution of "fair trade" for "free trade," but how modern society produces the wealth of the world and distributes it. Although some militant demonstrators attempted to invoke the "injustices" of capitalism (actually, capitalism was not being peculiarly "unjust" any more than lethal bacilli are being "unfair" when they produce illness and death), far fewer of the demonstrators appeared to understand the logic of a market economy. It has been reported that during anti-WTO demonstrations, little literature was distributed that explained the basic reason for denouncing the WTO and preventing its delegates from doing their business.

Indeed, the demonstration in Seattle, like the one in Washington, DC, that followed it several months later, however well-meant, created the illusion that acts of mere disruption, which became increasingly staged, can do more than moderate the "excesses" of globalization. The Washington demonstration, in fact, was so negotiated in character that the police allowed the demonstrators to walk across a chalked line as a mere symbol of illegality and then allowed themselves to be escorted into buses as arrestees. Police spokesmen pleasantly agreed that the young demonstrators were "decent" and "socially concerned kids" who meant well, and WTO delegates tolerantly acknowledged that the demonstrators drew their attention to troubling economic and environmental problems that needed correction. Undoubtedly, the authorities expect these "socially concerned kids" to eventually grow up and become good citizens.

Rather than meaningful protests, the demonstrations were noteworthy mainly because protest of any kind is such a rarity today. The limited number of participants seemed to lack an in-depth understanding of what the WTO represented. Even to protest "capitalism" is simply to voice an opposition to an abstract noun, which in itself tells us nothing about capitalist social relations, their dynamic, their transformation into destructive social forces, the prerequisites for undoing them, and finally the alternatives that exist to replace them. Few of the demonstrators appeared to know the answers to these questions; thus, they castigated corporations and multinationals as though

these are not the unavoidable outcomes of historic forces of capitalist production. Would the dangers of globalization be removed from the world if the corporations were scaled down in size? More fundamentally, could smaller enterprises ever have been prevented from developing into industrial, commercial, and financial giants that would not differ from modern multinationals?

My point is less to advance criticisms than to question the extent to which the Seattle and Washington demonstrators adequately understood the problems they were dealing with. Indeed, what is a demonstration meant to demonstrate? It must not only protest but also confront official power with popular power, even in incipient form. Demonstrations are mobilizations of sizable numbers of serious people who, in taking to the streets, intend to let the authorities know that they earnestly oppose certain actions by the powers-that-be. Reduced to such antics, they become self-deflating forms of entertainment. As such, they constitute no challenge to the authorities; indeed, where idiosyncratic behavior replaces forceful opposition, they show the public that advocates of their view are mere eccentrics who need not be taken seriously and whose cause is trivial. Without the gravitas that commands respect—and, yes, the discipline that reveals serious intentionality—demonstrations and other such manifestations are worse than useless; they harm their cause by trivializing it.

A politics of mere protest, lacking programmatic content, a proposed alternative, and a movement to give people direction and continuity, consists of little more than events, each of which has a beginning and an end but little more. The social order can live with an event or series of events and even find this praiseworthy. Worse still, such a politics lives or dies according to an agenda established by the social order it opposes. Corporations proposed the WTO; they needed worldwide participation in the Organization and, in their own way, generated the very opposition that now denounces its lack of democracy and lack of humaneness. They expected opposition, and only police amateurism in Seattle let it get slightly out of hand. It ill-becomes such an opposition to then plan to protest the nominating conventions of major political parties whose very existence many demonstrators profess to oppose. Indeed, the demonstrators, however well-meaning, legitimate the existence of the parties by calling upon them to alter their policies on international trade, as though they even have a justifiable place in a rational society.

A politics of protest is not a politics at all. It occurs within parameters set by the prevailing social system and merely responds to remediable ills, often mere symptoms, instead of challenging the social order as such. The masked anarchists who join in these events by smashing windows use the clamor of shattered glass to glamorize limited street protests with the semblance of violence and little more.

I have not made these critical remarks about the state of the Left today in order to carp against people, activities, and events, or from any generational or sectarian disdain. On the contrary, my criticisms stem from a deep sympathy for people who are sensitive to injustices and particularly for those striving to remedy them. Better to do something to end the silence of popular acquiescence than simply to perpetuate the complacency generated by a consumer-oriented society.

Nor have I presented my criticisms of Marxism and anarchism—the main players in the classical Left—in order to try to astound a new generation of activists with the grandeur of revolutionary history that they somehow must match. Again to the contrary, I have invoked the classical Left of yesteryear not only to suggest what it has to teach us but also to note its own limitations as the product of a different era and one that, for better or worse, will never return. What the classical Left has to teach us is that ideas must be systematic—coherent—if they are to be productive and understandable to people who are seriously committed to basic social change. Indeed, a future Left must show that the seemingly disparate problems of the present society are connected and stem from a common social pathology that must be removed as a totality. Moreover, no attempts to change the existing society will ever prove to be fundamental unless we understand how its problems are interconnected and how their solutions can be educed from humanity's potentialities for freedom, rationality, and self-consciousness.

By coherence, I do not mean only a methodology or a system of thinking that explores root causes, but rather that the very process of attempting to link together the various social pathologies to underlying factors and to resolve them in their totality is an ethical endeavor. To declare that humanity has a potentiality for freedom, rationality, and self-consciousness—and, significantly, that this potentiality is not being realized today—leads inexorably to the demand that every society justify its existence according to the extent to which it actualizes these norms. Any endeavor to assess a society's success in achieving freedom, rationality, and self-consciousness makes an implicit judgment. It raises the searing question of what a society "should be" within its material and cultural limits. It constitutes the realizable ideal that social development raises for all thinking people and that, up to now, has kept alive movements for the fulfillment of freedom.

Without that ideal as a continual and activating presence, no lasting movement for human liberation is possible—only sporadic protests that themselves may mask the basic irrationality of an unfree society by seeking to cosmetically remove its blemishes. By contrast, a constant awareness that a given society's irrationality is deep seated, that its serious pathologies are not isolated problems that can be cured piecemeal but must be solved by sweeping changes in the often hidden sources of crisis and suffering—that awareness alone is what can hold a movement together, give it continuity, preserve its message and organization beyond a given generation, and expand its ability to deal with new issues and developments.

Too often, ideas meant to yield a certain practice are instead transported into the academy, as fare for "enriching" a curriculum and, of course, generating jobs for the growing professoriat. Such has been the unhappy fate of Marxism, which, once an embattled and creative body of ideas, has now acquired academic respectability—to the extent that it is even regarded as worthy of study. At the same time, the routine use of the word "activist" raises problems that can be unintentionally regressive. Can there be action without insight into the nature of social ills and a theoretical understanding of the measures needed to resolve them? Can the activist even act meaningfully and effectively without drawing upon the rich body of experiences and ideas that have grown over the years and that can show us the pitfalls that lie below the surface, or the many strategies that have been tested by earlier generations?

In what likely directions is capitalist society developing in the coming century, and what are the most basic problems it is raising for humanity? Is there any special sector, class, or group in society to which we must appeal if we are to hope to create a revolutionary movement? What kind of movement and institutions must we create that will play a leading role in social change? Do we need any well-organized movement at all, or will our hoped-for changes occur spontaneously, emerging out of demonstrations around specific issues or street festivals or communitarian enterprises such as co-ops, alternative enterprises, and the like? Or do we have to build political entities, and if so, what kind? What is the relationship of a revolutionary movement to these new political entities? And how should power be situated and institutionalized in a rational society? Finally, what ethical considerations should guide us in our efforts?

Marxism failed to form an adequate picture of the worker as a many-sided human being and indeed fetishized him or her to the point of absurdity. It did not normally see workers as more than economic entities, but rather endowed them with semimystical properties as revolutionary agents, possessed of secret powers to understand their interests and a unique sensitivity to radical possibilities in the existing society. To read Rosa Luxemburg, Karl Liebknecht, Leon Trotsky, the syndicalist propagandists, and even run-of-the-mill Social Democrats is to sense that they held the socialist judgment of workers in awe and imbued them with remarkable revolutionary powers. That workers could also become fascists or reactionaries was inconceivable.

This mystification has not entirely been dispelled, but even so, we must ask, which part of society can play a leading role in radical change today? The fact is that the leveling role of Western capitalism and the increasing development of social struggles along ever-vaguer lines has opened up a vista much different from that which once hypnotized the classical Left. The technological level of the Industrial Revolution was highly labor intensive; the brutish exploitation of labor and the simplification of the work process with its consequent destruction of skills by a deadening division of labor made it possible for Marx and other theorists to single out the proletariat as the principal victim of capitalism and thus the principal engine of its demise.

Although many traditional factories are still with us, especially in the Third World, in Europe and North America they are giving way to highly skilled and differentiated systems of production. Many new strata can no longer be regarded, except in the most elastic way, as "workers" in any industrial sense. Such people are even becoming the majority of the "working class," while the industrial proletariat (contrary to Marx's expectations) is visibly becoming an ever-smaller minority of the population. For the present, at least, these workers are well paid (often receiving salaries rather than wages), consumer oriented in tastes, and far removed from a working-class outlook and a disposition to hold leftist social views.

Capitalism, in effect, is creating the bases for a populist politics—hopefully a radical and ultimately revolutionary one—that is focused on the broadening and expanding of professional opportunities, the quality of life, and a more pleasant environment. Economically, maturing capitalism can properly be descriptively divided into strata of the wealthy, the well-off, the comfortable, and the poor. Industrial wage workers in the West have more in common with salaried technicians and professionals than with underpaid unskilled workers in the service sector of fast-food restaurants and retail sales and the like, let alone with the nearly lumpenized poor. In the

absence of economic crises, social disquiet may focus on fears of crime, shortcomings in public services and education, the decline of traditional values, and the like. More momentously, this populist outlook fears environmental degradation, the disappearance of open spaces, and the growing congestion of once-human-scaled communities—indeed, of community life in all its aspects.

For more than a half-century, capitalism has managed not only to avoid a chronic economic crisis of the kind Marx expected but also to control crises that potentially had a highly explosive character. As a system, capitalism is one of the most unstable economies in history and hence is always unpredictable. But equally uncertain is the traditional radical notion that it must slip with unfailing regularity into periodic crises as well as chronic ones. The general population in Europe and the United States has displayed a remarkable confidence in the operations of the economy; more than 40 per cent of U.S. families have now invested in the stock market and accept its huge swings without being swept up by panics such as those that afflicted financial markets in the past. A strictly class-oriented politics based on industrial workers has receded, and the Left now faces the imperative to create a populist politics that reaches out to "the people" as they are today, in anticipation that they can now more easily be radicalized by issues that concern their communities, their civil liberties, their overall environment, and the integrity of their supplies of food, air, and water, not simply by a focus on economic exploitation and wage issues. The importance of economic issues cannot be overstated, but especially in periods of relative well-being, a future Left will be successful only to the extent that it addresses the public as a "people" rather than as a class, a population whose disquiet has at least as much to do with freedoms, quality of life, and future well-being as it does with economic crises and material insecurity.

By the same token, a future Left can hope to exercise influence only if it can mobilize people on issues that cut across class lines. From Marx's day until the 1930s, the principal victims of capitalist exploitation appeared to be workers at the point of production. The French Revolution, it was argued, allowed the peasantry to gain greater control of the land, and the democratic revolutions of the eighteenth century granted the lower middle classes a major place in all spheres of French society. But they left one class unsatisfied: the emerging industrial proletariat, which was subjected to harsh working conditions, prevented from organizing, and suffered a declining standard of living. Engels portrayed a working-class life based on the English proletariat of 1844 at the height of the first Industrial Revolution; Marx argued that the concentration of capital and the displacement of workers by machines would create insufferable misery in the factories of England and the continent. This anticapitalist vision was predicated on the belief that the proletariat's material conditions of life would worsen steadily while its numbers would increase to a point where it became the majority of the population.

By the late nineteenth century, however, these predictions were already falling short, and by 1950 they were wholly discredited. What with the sophistication of machinery, the appearance of electronics, the spectacular increase in motor vehicle production, the rise of the chemical industry, and the like, the proportion of industrial workers to the population at-large was diminishing, not rising. Moreover, due in large part to the struggles of legal trade unions to improve the living conditions of the proletariat in particular, the conflict between capital and labor was being

significantly muted. Marxism, then, was clearly boxed into the class relations of a historically limited period, the era of the first Industrial Revolution.

Far from becoming proletarianized or declining to a minority of the population as Marx had predicted, the middle class retained the psychology and consciousness of people who could hope for an ever-higher status. Propertyless as it may have been in reality and often cowed by the real bourgeoisie, the petty bourgeoisie was (and remains to a great extent) convinced that it has a privileged place in the market economy and entertains expectations that it can climb upward on the social ladder of the capitalist system. If anything, the working class has made sufficient gains that it expects its children, equipped with a better education than their parents, to step upward in life. Millions of small property owners invest in financial markets. Workers now describe themselves as "middle class" or, with a nuance that heightens the dignity of labor, as "working families." Combative and exclusive expressions like "workers," "toilers," and "laborers" that once implicitly hinted at the existence of class struggle are now used with increasing rarity or not at all.

The sharp lines that once distinguished a factory's accounting office from the proletariat are being blurred ideologically and eating away at working-class consciousness. Notwithstanding Marx's theory of history as an account of class struggles, with its many truths, a class is no more authentic than the consciousness with which it views reality. No worker is truly a class being, however much he is exploited, when he views social life in bourgeois terms. The bourgeoisie learned this fact quite early when it exploited ethnic, religious, gender, and craft divisions within the proletariat as a whole. Hence, the blue- or white-collar worker is a class being according to how she thinks of herself, relates to her boss, and holds expectations in life. A worker without a combative class consciousness is no more an exploited proletarian, for all practical purposes, than a policeman is an ordinary worker. Radical intellectuals' mystification of the worker has its origins in their imputation that "consciousness follows being," that is, when the worker recognizes that he is exploited and that capitalism is his social enemy.

What does this mean for a future Left? Unless capitalism unexpectedly collapses into a major chronic crisis (in which case, workers may well turn to the fascism of a Le Pen in France or the reactionism of a Buchanan in the U.S.), then the Left must focus on issues that are interclass in nature, addressing the middle as well as the working class. By the very logic of its grow-or-die imperative, capitalism may well be producing ecological crises that gravely imperil the integrity of life on this planet. The outputs of factories and the raw material industries, the destructive agricultural practices, and the consumption patterns in privileged parts of the world are simplifying the highly complex ecological ties that emerged over millions of years of natural evolution, reducing highly fertile areas to concrete landscapes, turning usable water into an increasingly degraded resource, surrounding the planet with a carbon dioxide layer that threatens to radically change the climate, and opening dangerous holes in the ozone layer. Rivers, lakes, and oceans are becoming garbage dumps for poisonous and life-inhibiting wastes. Almost every tangible component of daily life, from the food on the dinner table to substances used in the workplace, is becoming polluted with known or potentially dangerous toxicants. Cities are growing into vast, polluted, sprawling environments whose populations are larger than those of many nation-states only a few decades ago. The equatorial belt of tropical forests that surround the planet's land areas

and large parts of the temperate zones are being deforested and denuded of their complex life-forms.

Yet for capitalism to desist from its mindless expansion would be for it to commit social suicide. By definition, capitalism is a competitive economy that cannot cease to expand. The problems it may be creating for humanity as a whole—problems that transcend class differences—can easily become the bases for a vast critique if current environmentalists are willing to raise their concerns to the level of a radical social analysis and organize not simply around saving a select species or around the vices of automobile manufacturers but around replacing the existing irrational economy by a rational one. The fact that the nuclear industry still exists must be seen not simply as an abuse or a matter of stupidity, for example, but as an integral part of a greater whole: the need for an industry in a competitive economy to grow and outcompete its rivals. Similarly, the successes of the chemical industry in promoting the use of toxicants in agriculture, and the growing output of the automobile and petroleum industries—all must be seen as the results of the inner workings of a deeply entrenched system. Not only workers but the public must be educated in the reality that our emerging ecological problems stem from our irrational society.

Issues such as gender discrimination, racism, and national chauvinism must be recast not only as cultural and social regressions but as evidence of the ills produced by hierarchy. A growing public awareness must be fostered in order to recognize that oppression includes not only exploitation but also domination, and that it is based not only on economic causes but on cultural particularisms that divide people according to sexual, ethnic, and similar traits. Where these issues come to the foreground in the form of patent abuses, a conscious revolutionary movement must expand their implications to show that society as it exists is basically irrational and dangerous.

Such a revolutionary movement needs a distinctive body of tactics designed to expand the scope of any issue, however reformist it may seem at first glance, steadily radicalizing it and giving it a potentially revolutionary thrust. It should make no agreement with liberals and the bourgeoisie on retaining the existing order. If the solution to a specific environmental problem seems fairly pragmatic, then the movement must regard it as a step for widening a partly open door until it can show that the entire ecological problem is systemic and expose it as such to public view. Thus, a revolutionary movement should insist not only on blocking the construction of a nuclear plant but on shutting down all nuclear plants and replacing them with alternative energy sources that enhance the environment. It should regard no limited gains as conclusive but rather must clearly link a given demand to the need for basic social change. The same strategy applies to the use of chemicals in agriculture, current agricultural methods of growing food, the manufacture of harmful means of transportation, the manufacture of dangerous household products; indeed, every item whose production and use debases the environment and degrades human values.

I have examined elsewhere the reasons why power cannot be ignored—a problem that beleaguered the Spanish anarchists. But can we conceive of a popular movement gaining power without an agency that can provide it with guidance? A revolutionary Left that seeks to advance from protest demonstrations to revolutionary demonstrations must resolutely confront the problem of organization. I speak here not of ad hoc planning groups but rather of the creation and maintenance of an organization that is enduring, structured, and broadly programmatic. Such an organization

constitutes a definable entity and must be structured around lasting and formal institutions to make it operational; it must contain a responsible membership that firmly and knowledgeably adheres to its ideals; and it must advance a sweeping program for social change that can be translated into everyday practice. Although such an organization may join a coalition (or united front, as the traditional Left called it), it must not disappear into such a coalition or surrender its independence, let alone its identity. It must retain its own name at all times and be guided by its own statutes. The organization's program must be the product of a reasoned analysis of the fundamental problems that face society, their historical sources and theoretical fundaments, and the clearly visible goals that follow from the potentialities and realities for social change.

One of the greatest problems that revolutionaries in the past faced, from the English revolutionaries in the seventeenth century to the Spanish in the twentieth, was their failure to create a resolute, well-structured, and fully informed organization with which to counter their reactionary opponents. Few uprisings expand beyond the limits of a riot without the guidance of a knowledgeable leadership. The myth of the purely spontaneous revolution can be dispatched by a careful study of past uprisings (as I have attempted in my own work, the four-volume history called The Third Revolution). Even in self-consciously libertarian organizations, leadership always existed in the form of "influential militants," spirited men and women who constituted the nuclei around which crowds transformed street protests into outright insurrections. In his famous etching The Revolt,Daumier intuitively focuses on a single individual, amid other rebels, who raises the cry that brings the masses into motion. Even in seemingly "spontaneous insurrections," advanced militants, scattered throughout rebellious crowds, spurred the uncertain masses on to further action. Contrary to anarchistic myths, none of the soviets, councils, and committees that arose in Russia in 1917, Germany in 1918, and Spain in 1936 were formed simply of their own accord. Invariably, specific militants (a euphemism for leaders) took the initiative in forming them and in guiding inexperienced masses toward the adoption of a radical course of action.

Absorbed as they were with making concrete and immediate demands, few of these councils and committees had a broad overview of the social possibilities opened by the insurrections they initiated or a clear understanding of the enemies they had temporarily defeated. By contrast, the bourgeoisie and its statesmen knew only too well how to organize themselves, thanks to their considerable experience as entrepreneurs, political leaders, and military commanders. But the workers too often lacked the knowledge and experience so vital to developing such a perspective. It remains a tragic irony that insurrections not defeated outright by superior military forces often froze into immobility once they took power from their class enemies and rarely took the organizational steps necessary to retain their power. Without a theoretically trained and militant organization that had developed a broad social vision of its tasks and could offer workers practical programs for completing the revolution that they had initiated, revolutions quickly fell apart for lack of further action. Their supporters, zealous at the outset and for a brief period afterward, soon floundered, became demoralized for want of a thoroughgoing program, lost their élan, and then were crushed physically. Nowhere was this destructive process more apparent than in the German Revolution of 1918–19 and also to a great degree in the Spanish Revolution of 1936–37; mainly because the mass anarchosyndicalist union, the CNT, surrendered the power it had received from the Catalan workers in July 1936 to the bourgeoisie.

A future Left must carefully study these tragic experiences and determine how to resolve the problems of organization and power. Such an organization cannot be a conventional party, seeking a comfortable place in a parliamentary state, without losing its revolutionary élan. The Bolshevik party, structured as a top-down organization that fetishized centralization and internal party hierarchy, exemplifies how a party can merely replicate a state to become a bureaucratic and authoritarian entity.

If Marxists, when they found themselves in revolutionary situations, could not conceive of any politics that abolished the state, then the anarchists, and tragically the syndicalists who were deeply influenced by them intellectually, were so fixated on avoiding the state that they destroyed vital, self-governing revolutionary institutions. This is not the place to discuss Spanish anarchism and its rather confused anarchosyndicalist "farrago," as Chris Ealham has so aptly called it, but the CNT-FAI leadership seems to have lacked the slightest idea how to achieve a libertarian communist revolution. When power was actually thrust into their trembling hands, they simply did not know what to do with it.

Every revolution, indeed, even every attempt to achieve basic social change, will always meet with resistance from elites in power. Every effort to defend a revolution will require the amassing of power—physical as well as institutional and administrative—which is to say, the creation of a government. Anarchists may call for the abolition of the state, but coercion of some kind will be necessary to prevent the bourgeois state from returning in full force with unbridled terror. For a libertarian organization to eschew, out of misplaced fear of creating a "state," taking power when it can do so with the support of the revolutionary masses is confusion at best and a total failure of nerve at worst. Perhaps the CNT-FAI actually lived in awe of the very state apparatus whose existence it was committed to abolishing. Better that such a movement gets out of the way than remain cloaked in a seemingly "radical" camouflage that makes promises to the masses that it cannot honor.

The history of the libertarian Left does suggest, however, a form of organization that is consistent with attempts to create a left libertarian society. In a confederation, seeming higher bodies play the role of administering policy decisions that are made at the base of the organization. In the end, nearly all policy decisions, especially basic ones, are made at the base of the organization by its branches or sections. Decisions made at the base move to the top and then back again in modified form to the base until, by majority vote at the base, they become policies whose implementation is undertaken by special or standing committees.

No organizational model, however, should be fetishized to the point where it flatly contradicts the imperatives of real life. Where events require a measure of centralization, coordination at a confederal level may have to be tightened to implement a policy or tactic, to the extent that it is necessary and only for as long as it is necessary. A confederation can allow necessary centralization on a temporary basis, without yielding to a permanent centralized organization, only if its membership is conscious and thoroughly informed to guard against the abuses of centralization and only if the organization has structures in place to recall leaders who seem to be abusing their powers. Otherwise, we have no certainty that any libertarian practices will be honored. I have seen people who for decades were committed to libertarian practices and principles

throw their ideals to the wind, and even drift into a coarse nationalism, when events appealed more to their emotions than to their minds. A libertarian organization must have in place precautions such as the right to recall by the organization's membership and the right to demand a full accounting of a confederal body's practices, but the fact remains that there is no substitute for knowledge and consciousness.

A communalist society would have to make decisions on how resources are to be acquired, produced, allocated, and distributed. Such a society must seek to prevent the restoration of capitalism and of old or new systems of privilege. It must try to achieve a degree of administrative coordination and regulation on a huge scale among communities, and decision-making must be resolute if social life of any kind is not to collapse completely.

These constraints are necessary to provide the greatest degree of freedom possible, but they will not be imposed simply by "goodwill," "mutual aid," "solidarity," or even "custom," and any notion that they will rests more on a prayer than on human experience. Material want will quickly erode any goodwill and solidarity that a successful revolution might create among the libertarian victors; hence, the need for postscarcity as a precondition for a communalist society. In the Spanish Revolution of 1936–37, many of the new society's collectives, all flying the black-and-red flag of anarchosyndicalism, entered into blatant competition with one another for raw materials, technicians, and even markets and profits. The result was that they had to be "socialized" by the CNT, that is, the trade union had to exert control to equalize the distribution of goods and the availability of costly machinery, and oblige "rich" collectives to share their wealth with poor ones. (Later this authority was taken over by the Madrid nation-state for reasons of its own.) Nor were all peasants eager to join collectives when they were also afforded the opportunity to function as small property owners. Still others left the collectives in sizable numbers when they found themselves free to do so without fear. In other words, to establish a viable communalist society, more than personal and moral commitments will be needed—least of all, those extremely precarious variables that are based on "human nature" and "instincts for mutual aid."

The problem of achieving libertarian communism is one of the most untheorized aspects of the libertarian repertoire. The communist maxim "From each according to ability, to each according to need" presupposes a sufficiency of goods and hence complex technological development. That achievement involves a close agreement with Marx's emphasis that advances in the instruments of production are a precondition for communism. The success of libertarian communism, then, depends profoundly on the growth of the productive forces over many centuries and on the increasing availability of the means of life.

History is filled with countless examples where natural scarcity or limited resources obliged peoples to turn popular governments into kingly states, captives into slaves, women into subjugated drudges, free peasants into serfs, and the like. No such development lacks excesses, and if kindly rulers did not turn into brutal despots, it would have been miraculous. That we can sit in judgment on these societies, their states, and their oppressive methods is evidence that progress has occurred and, equally importantly, that our circumstances differ profoundly from theirs. Where famine was once a normal feature of life, we today are shocked when no effort is made to feed the starving. But we are shocked only because we have already developed the means

to produce a sufficiency, disallowing indifference to scarcity. In short, the circumstances have changed profoundly, however unjust the distribution of the means of life may continue to be. Indeed, that we can even say the distribution is unjust is a verdict that only a society able to eliminate material scarcity—and create, potentially, a postscarcity society—can make.

Thus, our expansive visions of freedom, today, have their preconditions: minimally, technological advancement. Only generations that have not experienced the Great Depression can ignore the preconditional bases for our more generous ideologies. The classical Left, particularly thinkers such as Marx, gave us much systematic thinking on history and contemporary social affairs. But will we elect to follow a truly libertarian use of the resources at our command and create a society that is democratic, communistic, and communalistic, based on popular assemblies, confederations, and sweeping civil liberties? Or will we follow a course that is increasingly statist, centralized, and authoritarian? Here, another "history" or dialectic comes into play—the great traditions of freedom that were elaborated over time by unknown revolutionaries and by libertarian thinkers such as Bakunin, Kropotkin, and Malatesta. We are thus faced with two legacies that have unfolded in tandem with each other: a material one and an ideological one.

Let us be frank and acknowledge that these legacies are not well known or easily understood. But from them, we can weave an ethical approach to social change that can give our endeavors definition and a possibility of success. For one thing, we can declare that "what should be"—humanity's potentialities for freedom, rationality, and self-consciousness—is to be actualized and guide our social lives. We can affirm "what should be" on the basis of decidedly real material possibilities and realizable ideological ones. Knowledge of "what should be," if reason is to guide our behavior, becomes the force driving us to make social change and to produce a rational society. With our material preconditions in place and with reason to guide us to the actualization of our potentialities, we can begin to formulate the concrete steps that a future Left will be obliged to take to achieve its ends. The material preconditions are demonstrably at hand, and reason, fortified by a knowledge of past endeavors to produce a relatively rational society, provides the means to formulate the measures and the means, step by step, to produce a new Left that is relevant for the foreseeable future.

Far from eschewing reason and theory, a future Left that is meaningful must be solidly grounded in theory if it is to have any power to understand the present in relationship to the past, and the future in relationship to the present. A lack of philosophical equipment to interpret events, past and present, will render its theoretical insights fragmentary and bereft of contextuality and continuity. Nor will it be able to show how specific events relate to a larger whole and link them together in a broad perspective. It was this admirable intention, I should note, that induced Marx to give his ideas a systematic and unified form, not any personal disposition on his part for "totalitarianism." The world in which he lived had to be shown that capital accumulation and the bourgeoisie's unrelenting concentration of industrial resources were not products of greed but vital necessities for enterprises in a sharply competitive economy.

One can project an alternative to the present society only by advancing rational alternatives to the existing order of things—alternatives that are objectively and logically based on humanity's potentialities for freedom and innovation. In this respect, the ability of human beings to project

themselves beyond their given circumstances, to re-create their world and their social relations, and to infuse innovation with ethical judgments becomes the basis for actualizing a rational society.

This "what should be," as educed by reason, stands on a higher plane of truthfulness and wholeness than does the existential and pragmatic "what is." Figuratively speaking, the contrast between the "what should be" and the "what is," as elaborated and challenged by mind as well as by experience, lies at the heart of dialectic. Indeed, the "what should be," by sitting in judgment on the validity of the given, joins dialectical development in the biosphere with dialectical development in the social sphere. It provides the basis for determining whether a society is rational and to what degree it has rational content. Absent such a criterion, we have no basis for social ethics apart from the egocentric, adventitious, anarchic, and highly subjective statement "I choose!" A social ethics cannot remain suspended in the air without an objective foundation, a comprehensive evolution from the primitive to the increasingly sophisticated, and a coherent content that supports its development.

Moreover, without an objective potentiality (that is, the implicit reality that lends itself to rational eduction, in contrast to mere daydreaming) that sits in "judgment" of existential reality as distinguished from a rationally conceived reality, we have no way to derive an ethics that goes beyond mere personal taste. What is to guide us in understanding the nature of freedom? Why is freedom superior to mere custom or habit? Why is a free society desirable and an enslaved one not, apart from taste and opinion? No social ethics is even possible, let alone desirable, without a processual conception of behavior, from its primal roots in the realm of potentiality at the inception of a human evolution, through that evolution itself, to the level of the rational and discursive. Without criteria supplied by the dialectically derived "ought," the foundations for a revolutionary movement dissolve into an anarchic vacuum of personal choice, the muddled notion that "what is good for me constitutes the good and the true—and that is that!"

As much as we are obliged to deal with the "what is"—with the existential facts of life, including capitalism—it is the dialectically derived "true," as Hegel might put it, that must always remain our guide, precisely because it defines a rational society. Abandon the rational and we are reduced to the level of mere animality from which the course of history and the great struggles of humanity for emancipation have tended to free us. It is to break faith with History, conceived as a rational development toward freedom and innovation, and to diminish the defining standards of our humanity. If we often seem adrift, it is not for lack of a compass and a map by which to guide ourselves toward the actualization of our uniquely human and social potentialities.

This leads us to another premise for acquiring social truth: the importance of dialectical thinking as our compass. This logic constitutes both the method and the substance of an eductive process of reasoning and unfolding. Eduction is the procedure that immanently elicits the implicit traits that lend themselves to rational actualization, namely, freedom and innovation. A deep ecologist once challenged me by asking why freedom should be more desirable than unfreedom. I reply that freedom, as it develops objectively through various phases of the ascent of life, from mere choice as a form of self-maintenance to the re-creation of the environment by intellection and innovation, can make for a world that is more habitable, humane, and creative than anything achieved by the

interplay of natural forces. Indeed, to rephrase a famous axiom of Hegel's, a point can be reached in a free society where what is not free is not real (or actual).

Indeed, a task of dialectical thinking is to separate the rational from the arbitrary, external, and adventitious in which it unfolds, an endeavor that demands considerable intellectual courage as well as insight. Thus, the conquests of Alexander the Great dovetail with the rational movement of History, insofar as Alexander unified a decomposing world made up of rotting city-states and parasitic monarchies and transmitted Hellenic thought to it. But the explosion of Mongol horsemen from the steppes of central Asia contributed no more to the rational course of events than did, say, a decline in rainfall over North Africa that turned a vast forested area into a grim, formidable desert. Moreover, to speak of a Mongol invasion as evidence of a "potentiality for evil" is to divest the rich philosophical term potentiality of its creative content. Much better to use here the ideologically neutral term capacity, which can be applied anywhere for any phenomenon—and to no intelligible purpose whatever.

Remote as it may seem to some, dialectical thinking is, in my view, indispensable for creating the map and formulating the agenda for a new Left. The actualization of humanity's potentiality for a rational society—the "what should be" achieved by human development—occurs in the fully democratic municipality, the municipality based on a face-to-face democratic assembly composed of free citizens, for whom the word politics means direct popular control over the community's public affairs by means of democratic institutions. Such a system of control should occur within the framework of a duly constituted system of laws, rationally derived by discourse, experience, historical knowledge, and judgment. The free municipality, in effect, is not only a sphere for deploying political tactics but a product of reason. Here, means and ends are in perfect congruence, without the troubling "transitions" that once gave us a "dictatorship of the proletariat" that soon turned into a dictatorship of the party.

Furthermore, the libertarian municipality, like any social artifact, is constituted. It is to be consciously created by the exercise of reason, not by arbitrary "choices" that lack objective ethical criteria and therefore may easily yield oppressive institutions and chaotic communities. The municipality's constitution and laws should define the duties as well as the rights of the citizen, that is, they should explicitly clarify the realm of necessity as well as the realm of freedom. The life of the municipality is determined by laws, not arbitrarily "by men." Law, as such, is not necessarily oppressive: indeed, for thousands of years the oppressed demanded laws, as nomos, to prevent arbitrary rule and the "tyranny of structurelessness." In the free municipality, law must always be rationally, discursively, and openly derived and subject to careful consideration. At the same time, we must continually be aware of regulations and definitions that have harnessed humanity to their oppressors.

As Rousseau saw, the municipality is not merely an agglomeration of buildings but of free citizens. Combined with reason, order can yield coherent institutions. Lacking order and reason, we are left with a system of arbitrary rule, with controls that are not accountable or answerable to the people—in short, with tyranny. What constitutes a state is not the existence of institutions but rather the existence of professional institutions, set apart from the people, that are designed to dominate them for the express purpose of securing their oppression in one form or another.

A revolutionary politics does not challenge the existence of institutions as such but rather assesses whether a given institution is emancipatory and rational or oppressive and irrational. The growing proclivity in oppositional movements to transgress institutions and laws merely because they exist is in fact reactionary and, in any case, serves to divert public attention away from the need to create or transform institutions into democratic, popular, and rational entities. A "politics" of disorder or "creative chaos," or a naïve practice of "taking over the streets" (usually little more than a street festival), regresses participants to the behavior of a juvenile herd; by replacing the rational with the "primal" or "playful," it abandons the Enlightenment's commitment to the civilized, the cultivated, and the knowledgeable. Joyful as revolutions may sometimes also be, they are primarily earnestly serious and even bloody; and if they are not systematic and astutely led, they will invariably end in counterrevolution and terror. The Communards of 1871 may have been deliriously drunk when they "stormed the heavens" (as Marx put it), but when they sobered up, they found that the walls surrounding Paris had been breached by the counterrevolutionary Versaillais. After a week of fighting, their resistance collapsed, and the Versaillais shot them arbitrarily and in batches by the thousands. A politics that lacks sufficient seriousness in its core behavior may make for wonderful Anarchy but is disastrous revolutionism.

What specific political conclusions do these observations yield? What political agenda do they support?

First, the "what should be" should preside over every tenet of a future political agenda and movement. As important as a politics of protest may be, it is no substitute for a politics of social innovation. Today, Marxists and anarchists alike tend to behave defensively, merely reacting to the existing social order and to the problems it creates. Capitalism thus orchestrates the behavior of its intuitive opponents. Moreover, it has learned to mute opposition by shrewdly making partial concessions to protesters.

The municipality, as we have seen, is the authentic terrain for the actualization of humanity's social potentialities to be free and innovative. Still, left to itself, even the most emancipated municipality may become parochial, insular, and narrow. Confederalism remains at once the operational means of rounding out deficits that any municipality is likely to face when it introduces a libertarian communist economy. Few, if any, municipalities are capable of meeting their needs on their own. An attempt to achieve economic autarchy—and the concomitant cultural parochialism that it so often yields in less economically developed societies—would be socially undesirable. Nor does the mere exchange of surplus products remove the commodity relationship; the sharing of goods according to a truly libertarian view is far different from an exchange of goods, which closely resembles market exchanges. By what standard would the "value" of surplus commodities be determined—by their congealed labor? The incipient bases for a capitalist economy remained unrecognized, even in anarchist Catalonia, among those who boasted of their communist convictions.

Still another distinction that must be drawn is that between policymaking decisions and strictly administrative ones. Just as the problems of distribution must not be permitted to drag a community into capitalist mores and market practices, administrators must not be allowed to make policy decisions, which properly belong to popular assemblies. Such practices must be made, quite

simply, illegal, that is, the community must establish regulations, with punitive features, forbidding committees and agencies to exercise rights that properly belong to the assembled community. As insensitive as such measures may seem to delicate libertarian sensibilities, they are justified by a history in which hard-won rights were slowly eroded by elites who sought privileges for themselves at the expense of the many. Postscarcity in the availability of the means of life may serve to render any pursuit of economic privilege a laughable anachronism. But, as hierarchical society has shown, something more than economic privileges, such as the enhancement of status and power, may be involved.

Human beings actualize their potentialities in free municipalities that are rationally and discursively constituted and institutionalized in free popular assemblies. Whatever politics abets this development is historically progressive; any self-professed politics that diminishes this development is reactionary and reinforces the existing social order. Mere expressions of formless "community" that devolve into "street festivals," particularly when they become substitutes for a libertarian municipalist politics (or, more disturbingly, a distortion of them), feed the overall juvenilization that capitalism promotes through its impetus to dumb down society on a massive scale.

During the interwar years, when proactive forces for revolutionary change seemed to threaten the very existence of the social order, the classical Left was focused on a distinct set of issues: the need for a planned economy, the problems of a chronic economic crisis, the imminence of a worldwide war, the advance of fascism, and the challenging examples provided by the Russian Revolution. Today, contemporary leftists are more focused on major ecological dislocations, corporate gigantism, the influence of technology on daily life, and the impact of the mass media. The classical Left looked at deep-seated crises and the feasibility of revolutionary approaches to create social change; the contemporary Left is more attentive to a different set of abuses.

The capitalism under which we live today is far removed from the capitalism that Marx knew and that revolutionaries of all kinds tried to overthrow in the first half of the twentieth century. It has, indeed, developed in great part along the lines Marx suggested in his closing chapters of the first volume of Capital: as an economy whose very law of life is accumulation, concentration, and expansion. When it can no longer develop along these lines, it will cease to be capitalism. This follows from the very logic of commodity exchange, with its expression in competition and technological innovation.

Marxist productivism and anarchist individualism have both led to blind alleys, albeit widely divergent ones. Where Marxism tends to overorganize people into parties, unions, and proletarian "armies" guided by elitist leaders, anarchism eschews organization and leaders as "vanguards" and celebrates revolutionism as an instinctive impulse unguided by reason or theory. Where Marxism celebrates technological advances, without placing them in a rational, ethical, and ecological context, anarchism deprecates sophisticated technics as the demonic parent of the "technocratic man," who is lured to perdition by reason and civilization. Technophilia has been pitted against technophobia; analytical reason against raw instinct; and a synthetic civilization against a presumably primeval nature.

The future of the Left, in the last analysis, depends upon its ability to accept what is valid in both Marxism and anarchism for the present time and for the future that is coming into view. In an era of permanent technological revolution, the validity of a theory and a movement will depend profoundly on how clearly it can see what lies just ahead. Radically new technologies, still difficult to imagine, will undoubtedly be introduced that will have a transformative effect upon the entire world. New power alignments may arise that produce a degree of social disequilibrium that has not been seen for decades, accompanied by new weapons of unspeakable homicidal and ecocidal effects, and a continuing ecological crisis.

But no greater damage could afflict human consciousness than the loss of the Enlightenment program: the advance of reason, knowledge, science, ethics, and even technics, which must be modulated to find a progressive place in a free and humane society. Without the attainments of the Enlightenment, no libertarian revolutionary consciousness is possible. In assessing the revolutionary tradition, a reasoned Left has to shake off dead traditions that, as Marx warned, weigh on the heads of the living, and commit itself to create a rational society and a rounded civilization.

on universal basic income as an example of a program that might begin to detach work from compensation and put an end to the dilemmas described in this book - David Graeber

I don't usually like putting policy recommendations in my books. One reason for this is that it has been my experience that if an author is critical of existing social arrangements, reviewers will often respond by effectively asking "so what are you proposing to do about it, then?" search the text until they find something that looks like a policy suggestion, and then act as if that is what the book is basically about. So if I were to suggest that a mass reduction of working hours or a policy of universal basic income might go far in solving the problems described here, the likely response will be to see this as a book about reducing working hours or about universal basic income, and to treat it as if it stands and falls on the workability of that policy—or even, the ease by which it could be implemented.

That would be deceptive. This is not a book about a particular solution. It's a book about a problem—one that most people don't even acknowledge exists.

Another reason I hesitate to make policy suggestions is that I am suspicious of the very idea of policy. Policy implies the existence of an elite group—government officials, typically—that gets to decide on something ("a policy") that they then arrange to be imposed on everybody else. There's a little mental trick we often play on ourselves when discussing such matters. We say, for instance, "What are we going to do about the problem of X?" as if "we" were society as a whole, somehow acting on ourselves, but, in fact, unless we happen to be part of that roughly 3 percent to 5 percent of the population whose views actually do affect policy makers, this is all a game of make-believe; we are identifying with our rulers when, in fact, we're the ones being ruled. This is what happens when we watch a politician on television say "What shall we do about the less fortunate?" even though at least half of us would almost certainly fit that category ourselves.

Myself, I find such games particularly pernicious because I'd prefer not to have policy elites around at all. I'm personally an anarchist, which means that, not only do I look forward to a day sometime in the future when governments, corporations, and the rest will be looked at as historical curiosities in the same way as we now look at the Spanish Inquisition or nomadic invasions, but I prefer solutions to immediate problems that do not give more power to governments or corporations, but rather, give people the means to manage their own affairs.

It follows that when faced with a social problem my impulse is not to imagine myself in charge, and ponder what sort of solutions I would then impose, but to look for a movement already out there, already trying to address the problem and create its own solutions. The problem of bullshit jobs, though presents unusual challenges in this regard. There are no anti–bullshit job movements. This is partly because most people don't acknowledge the proliferation of bullshit jobs to be a problem, but also because even if they did, it would be difficult to organize a movement around such a problem. What local initiatives might such a movement propose? One could imagine unions or other worker organizations launching anti-bullshit initiatives in their own workplaces, or even across specific industries—but they would presumably call for the de-bullshitization of real work rather than firing people in unnecessary positions. It's not at all clear what a broader campaign against bullshit jobs would even look like. One might try to shorten the working week and hope things would sort themselves out in response. But it seems unlikely that they would. Even a successful campaign for a fifteen-hour week would be unlikely to cause the unnecessary jobs and industries to be spontaneously abandoned; at the same time, calling for a new government bureaucracy to assess the usefulness of jobs would inevitably itself turn into a vast generator of bullshit.

So would a guaranteed jobs program.

I've only been able to identify one solution currently being promoted by social movements, that would reduce rather than increase the size and intrusiveness of government. That's Universal Basic Income.

Let me end with a final testimony, from an activist friend whose political purpose in life is to render her own bullshit job unnecessary, and one of her fellow activists. Leslie is a Benefits Advisor in the United Kingdom, that is, she works for an NGO whose purpose is to guide citizens through the elaborate obstacle course successive governments have set up to make it as difficult as possible for those out of work, or otherwise in material need, to get access to the money the government claims it has set apart for them. Here is the testimony she sent in:

Leslie: My job shouldn't be necessary, but it is, because of the whole long train of bullshit jobs invented to keep people who need money from having it. As if claiming any kind of benefit were not Kafkaesque, intrusive and humiliating enough, they also make it incredibly complicated. Even when someone is entitled to something, the process of applying is so complex most need help to understand the questions and their own rights.

Leslie has had to deal for years with the insanity that ensues when one tries to reduce human caring to a format that can be recognized by computers—let alone computers designed to keep caring precisely limited. As a result she ends up in much the same position as Tania in chapter 2, who

had to spend hours rewriting job applicants' CVs and coaching them on which keywords to use to "make it past the computer":

Leslie: There are now certain words which have to be used on the forms, I call it the catechism, which if not used can result in a failed claim—but these are only known by those like myself who have had training and access to the handbooks. And even then, especially for disability claims, the claimant often ends up having to fight through to a tribunal to get their entitlement recognized. I do get a little thrill every time we win through for someone. But this doesn't make up for the anger I feel about the colossal waste of everyone's time this is. For the claimant, for me, for the various bods at the DWP [Department of Works and Pensions] who deal with the claim, for the judges at the tribunals, the experts called in to support either side. Isn't there something more constructive we could all be doing, like, I don't know, installing solar panels or gardening? I also often wonder about whoever made up these rules. How much did they get paid for it? How long did it take them? How many people were involved? To their minds I guess they were ensuring that the noneligible don't get money… And then I think of visiting aliens laughing at us, humans inventing rules to prevent other humans from getting access to tokens of a human concept, money—which is by its nature not scarce.

On top of all that, since she is a do-gooder, Leslie can expect to make only a minimal living herself and the money to run her office itself involves satisfying an endless chain of self-satisfied paper pushers.

Leslie: To add insult to injury, my work is funded by charity trusts, a whole other long chain of BS jobs, from me applying for money up to the CEOs who claim their organizations fight poverty, or "make the world a better place." At my end this starts with hours searching for relevant funds, reading their guidelines, spending time learning how to best approach them, filling out forms, making phone calls. If successful, I'll next have to spend hours every month compiling statistics and filling out monitoring forms. Each trust has its own catechism and its own sets of indicators, each wants their own set of evidence that we are "empowering" people, or "creating change" or innovation, when, in fact, we're juggling rules and language on behalf of people who just need help to fill out the paperwork, so they can get on with their lives.

Leslie told me of studies that demonstrate that any system of means testing, no matter how it's framed, will necessarily mean at least 20 percent of those who legitimately qualify for benefits give up and don't apply. That's almost certainly more than the number of "cheats" who might be detected by the rules—in fact, even counting those who are honestly mistaken the number still only comes to 1.6 percent. The 20 percent figure would apply even if no one actually was formally denied benefits at all. But of course the rules are designed to deny as many claimants as can plausibly be denied: between sanctions and capricious applications of the rules, we've gotten to the point now where 60 percent of those eligible for unemployment benefits in the United Kingdom don't get them. In other words, everyone she describes, the entire archipelago that starts with the bureaucrats who write the rules, and includes the DWP, enforcement tribunals, advocates, and employees who work for the funding bodies that process applications for the NGOs that employ those advocates, all of them, are part of a single vast apparatus that exists to maintain the illusion that people are naturally lazy and don't really want to work—and therefore, that even if society

does have a responsibility to ensure they don't literally starve to death, it is necessary to make the process of providing them with the means of continued existence as confusing, time-consuming, and humiliating as possible.

The job, then, is essentially a kind of horrific combination of box ticking and duct taping, making up for the inefficiencies of a system of caregiving intentionally designed not to work. Thousands of people are maintained on comfortable salaries in air-conditioned offices simply in order to ensure that poor people continue to feel bad about themselves.

Leslie knew this better than anyone because she'd spent time on both sides of the desk. She had been on benefits herself for years as a single mother; she knew exactly what things looked like on the receiving end. Her solution? Eliminate the apparatus entirely. She is involved in the movement for Universal Basic Income, which calls for replacing all means-tested social welfare benefits with a flat fee to be paid to everyone, equally, residing in the country.

Candi, a fellow Basic Income activist—who also held a useless job in the system whose details she preferred not to disclose—told me she originally became interested in such issues when she first moved to London in the 1980s and became part of the International Wages for Housework Movement:

Candi: I got involved in Wages for Housework because I felt that my mother needed it. She was trapped in a bad marriage, and she would have left my dad a lot earlier if she'd had her own money. That's something really important for anyone in an abusive or even just boring relationship: to be able to get out of it without being financially impacted.

I'd just been in London for a year. I'd been trying to get involved in some form of feminism back in the States. One of my formative memories was my mother taking me to a consciousness raising group in Ohio when I was nine. We ripped out pages from St. Paul's Gospel where he was talking about how terrible women are and made a pile of them. And because I was the youngest member of the group they told me to light the pile. I remember I wouldn't do it at first because I'd been taught not to play with matches.

David: But you did eventually light it?

Candi: I did. My mother gave me permission. Not long after that she got a job that paid enough to live on, and immediately, she left my dad. That was kind of proof in the pudding for me.

In London, Candi found herself drawn to Wages for Housework—then widely seen by most other feminists as an annoying if not dangerous fringe group—because she saw it as providing an alternative to sterile debates between liberals and separatists. Here at least was an economic analysis of the real-life problems women faced. Some at the time were beginning to speak of a "global work machine," a planetwide wage-labor system designed to pump more and more effort out of more and more people, but what feminist critics had begun pointing out was that same system also defined what was to be considered "real" labor—the kind that could be reduced to "time" and could thus be bought and sold—and what wasn't. Most women's labor was placed in the latter category, despite the fact that without it, the very machine that stamped it as "not really work" would grind to a halt immediately.

Wages for Housework was essentially an attempt to call capitalism's bluff, to say, "Most work, even factory work, is done for a variety of motives; but if you want to insist that work is only valuable as a marketable commodity, then at least you can be consistent about the matter!" If women were to be compensated in the same way as men then a huge proportion of the world's wealth would instantly have to be handed over to them; and wealth, of course, is power. What follows is from a conversation with both of them:

David: So inside Wages for Housework, were there many debates about the policy implications—you know, the mechanisms through which the wages would actually be paid?

Candi: Oh, no, it was much more a perspective—a way to expose the unpaid work that was being done that nobody was supposed to talk about. And for that it did a really good job. Few were talking about the work women were already doing for free in the 1960s, but it became an issue when Wages for Housework was established in the 1970s—and now it's standard to take it into account when working out divorce settlements, for example.

David: So the demand itself was basically a provocation?

Candi: It was much more a provocation than it was ever a plan, "this is how we could actually do it"—anything like that. We did talk about where the money would come from. At first, it was all about getting money out of capital. Then in the later eighties, Wilmette Brown's book Black Women and the Peace Movement came out, all about how war and the war economy affects women and particularly Black women more than anyone else, so we started using the slogan "pay women not soldiers." Actually you still hear that, "wage caring not killing."

So we certainly targeted where the money was. But we never much got into the mechanics.

David: Wait, "wage caring not killing"—whose slogan is that?

Leslie: Global Women's Strike. That's the contemporary successor to Wages for Housework. When we came out with the first European UBI [Universal Basic Income] petition back in 2013, that was Global Women's Strike's response: two months later, they put out a petition to wage carers instead. Which myself, I wouldn't have a problem with, if they were willing to admit that everyone is a carer in one form or another. If you're not looking after someone else then at the very least you're looking after yourself, and this takes time and energy the system is less and less willing to afford people. But then recognizing that would just lead back to UBI again: if everyone's a carer, then you might as well just fund everybody, and let them decide for themselves who they want to care for at any given time.

Candi had come around from Wages for Housework to UBI for similar reasons. She and some of her fellow activists started asking themselves: Say we did want to promote a real, practical program, what would that be?

Candi: The reaction we used to get on the street when we leafleted for Wages for Housework was, either women would say, "Great! Where can I sign up?" or they'd say, "How dare you demand money for something I do for love?" That second reaction wasn't entirely crazy, these women

were understandably resistant to commodifying all human activity in the way that getting a wage for housework might imply.

Candi was particularly moved by the arguments of the French Socialist thinker André Gorz. When I offered my own analysis on the inherently unquantifiable nature of caring, she told me Gorz had anticipated it forty years ago:

Candi: Gorz's critique of Wages for Housework was that if you kept emphasizing the importance of care to the global economy in strictly financial terms, then there was the danger that you'd end up putting a dollar value on different forms of caring, and saying, that's its real "value." But in that case, you are running the risk of more and more of that caring becoming monetized, quantified, and therefore, kind of fucked up, because monetizing those activities often decreases the qualitative value of the care, especially if it's done, as it is usually, as a list of specific tasks with set time limits. He was already saying that in the seventies, and now, of course, that's exactly what's transpired. Even in teaching, nursing.

Leslie: Let alone what I do.

David: Yeah, I know. "Bullshitization" is my phrase.

Candi: Yes, it's been bullshitized, absolutely.

Leslie: Whereas UBI … Didn't Silvia [Federici] write or talk in an interview recently about how the UN and then all sorts of world bodies kind of glommed onto feminism as a way to resolve the capitalist crisis of the seventies? They said, sure, let's bring women and carers into the paid workforce (most working-class women were already doing a "double day"), not to empower women but as a way of disciplining men. Because insofar as you see an equalization of wages since then, it's mainly because in real terms, working-class men's wages have gone down, not because women are necessarily getting that much more. They're always trying to set us against each other. And that's what all these mechanisms for assessing the relative value of different kinds of work are necessarily going to be about.

That's why for me, the pilot study of Basic Income carried out in India is so exciting. Well a lot of things are exciting about it—for instance, domestic violence goes way down. (This makes sense because I think some 80 percent of domestic disputes that lead to violence turn out to be about money.) But the main thing is, it starts to make social inequalities dissolve. You start by giving everyone an equal amount of money. That in itself is important, because money has a certain symbolic power: it's something that's the same for everyone, and when you give everyone, men, women, old, young, high caste, low caste, exactly the same amount, those differences start to dissolve. This happened in the Indian pilot where they observed that the girls were given the same amount of food as boys unlike before, disabled people were more accepted in village activities, and young women dropped the social convention that said they were supposed to be shy and modest and started hanging around in public like boys… Girls started participating in public life.

And any UBI payment would have to be enough to live on, all by itself, and it would have to be completely unqualified. Everyone has to get it. Even people who don't need it. It's worth it, just to establish the principle that when it comes to what's required to live, everyone deserves that,

equally, without qualification. This makes it a human right, not just charity or duct tape for lack of other forms of income. Then if there are further needs on top of that, say someone is disabled, well, then you address that, too. But only after you establish the right of material existence for all people.

This is one of the elements that startles and confuses a lot of people when they first hear about the concept of Basic Income. Surely you aren't going to give $25,000 a year (or whatever it is) to Rockefellers, too? The answer is yes. Everyone is everyone. It's not like there are so many billionaires this will come to a particularly large amount of money; rich people could be taxed more anyway; if one wanted to start means-testing, even for billionaires, then one would have to set up a bureaucracy to start means-testing again, and if history tells us anything, it's that such bureaucracies tend to expand.

What Basic Income ultimately proposes is to detach livelihood from work. Its immediate effect would be to massively reduce the amount of bureaucracy in any country that implemented it. As Leslie's case shows, an enormous amount of the machinery of government, and that half-government corporate NGO penumbra that surrounds it in most wealthy societies, is just there to make poor people feel bad about themselves. It's an extraordinarily expensive moral game played to prop up a largely useless global work machine.

Candi: Let me give an example. Recently I was thinking maybe I'd foster a kid. So I looked into the package. It's quite generous. You get a council flat, and on top of that you get £250 a week to look after the child. But then I realized: wait a minute. They're talking about £13,000 a year and an apartment, for one child. Which the child's parents in probably most cases didn't have. If we'd just given the same thing to the parents so they didn't get into so many problems they'd never have had to foster the child to begin with.

And, of course, that's not even counting the cost of the salaries of the civil servants who arrange and monitor fosterage, the building and upkeep of the offices in which they work, the various bodies that monitor and control those civil servants, the building and upkeep of the offices in which they work, and so forth.

This is not the place to enter into arguments about how a Basic Income program might actually work. If it seems implausible to most ("But where would the money come from?"), it's largely because we've all grown up with largely false assumptions about what money is, how it's produced, what taxes are really for, and a host of other issues that lie far beyond the scope of this volume. Waters are further muddied by the fact that there are radically different visions of what a universal income is and why it would be good to have one: ranging from a conservative version that aims to provide a modest stipend as a pretext to completely eliminate existing welfare state provisions like free education or health care, and just submit everything to the market, to a radical version such as Leslie and Candi support, which assumes existing unconditional guarantees like the British National Health Service will be left in place. One sees Basic Income as a way of contracting, the other sees it as a way of expanding the zone of unconditionality. This latter is the kind that I would myself be able to get behind. I do this despite my own politics, which is quite

explicitly antistatist: as an anarchist, I look forward to seeing states dismantled entirely, and in the meantime, have no interest in policies that will give states more power than they have already.

But oddly, this is why I can get behind Basic Income. Basic Income might seem like it is a vast expansion of state power, since presumably it's the government (or some quasi-state institution like a central bank) that would be creating and distributing the money, but, in fact, it's the exactly the reverse. Huge sections of government—and precisely, the most intrusive and obnoxious ones, since they are most deeply involved in the moral surveillance of ordinary citizens—would be instantly made unnecessary and could be simply closed down. Yes, millions of minor government officials and benefit advisors like Leslie would be thrown out of their current jobs, but they'd all receive basic income too. Maybe some of them will come up with something genuinely important to do, like installing solar panels, as Leslie suggests, or discovering the cure for cancer. But it wouldn't matter if they instead formed jug bands, devoted themselves to restoring antique furniture, spelunking, translating Mayan hieroglyphics, or trying to set the world record for having sex at an advanced age. Let them do what they like! Whatever they end up doing, they will almost certainly be happier than they are now, imposing sanctions on the unemployed for arriving late at CV-building seminars or checking to see if the homeless are in possession of three forms of ID; and everybody else will be better off for their newfound happiness.

Even a modest Basic Income program could become a stepping-stone toward the most profound transformation of all: to unlatch work from livelihood entirely. As we saw in the last chapter, a strong moral case can be made for paying everyone the same regardless of their work. Yet the argument cited in that chapter did assume people were being paid for their work, and this would at the very least require some kind of monitoring bureaucracy to ensure that people were, in fact, working, even if it did not have to measure how hard or how much they produced. A full Basic Income would eliminate the compulsion to work, by offering a reasonable standard of living to all, and then either leaving it up to each individual to decide whether they wished to pursue further wealth, by doing a paying job, or selling something, or whether they wished to do something else with their time. Alternately, it might open the way to developing better ways of distributing goods entirely. (Money is after all a rationing ticket, and in an ideal world, one would presumably wish to do as little rationing as possible.) Obviously, all this depends on the assumption that human beings don't have to be compelled to work, or at least, to do something that they feel is useful or beneficial to others. As we've seen, this is a reasonable assumption. Most people would prefer not to spend their days sitting around watching TV and the handful who really are inclined to be total parasites are not going to be a significant burden on society, since the total amount of work required to maintain people in comfort and security is not that formidable. The compulsive workaholics who insist on doing far more than they really have to would more than compensate for the occasional slackers.

Finally, the concept of unconditional universal support is directly relevant to two issues that have come up repeatedly over the course of this book. The first is the sadomasochistic dynamic of hierarchical work arrangements—a dynamic that tends to be sharply exacerbated when everyone knows the work to be pointless. A lot of the day-to-day misery in working people's lives springs directly from this source. In chapter 4, I cited Lynn Chancer's notion of sadomasochism in

everyday life, and particularly the point that, unlike actual BDSM play, where there's always a safe-word, when "normal" people fall into the same dynamic, there's never such an easy way out.

"You can't say 'orange' to your boss."

It's always occurred to me this insight is important and could even become the basis for a theory of social liberation. I like to think that Michel Foucault, the French social philosopher, was moving in this direction before his tragic death in 1984. Foucault, according to people who knew him, underwent a remarkable personal transformation on discovering BDSM, turning from a notoriously cagey and standoffish personality to one suddenly warm, open, and friendly—but his theoretical ideas also entered into a period of transformation that he was never able to fully bring to fruit. Foucault, of course, is famous mainly as a theorist of power, which he saw as flowing through all human relationships, even as the basic substance of human sociality, since he once defined it as simply a matter of "acting on another's actions." This always created a peculiar paradox because while he wrote in such a way as to suggest he was an antiauthoritarian opposed to power, he defined power in such a way that social life would impossible without it. At the very end of his career, he seems to have aimed to resolve the dilemma by introducing a distinction between what he called power and domination. The first, he said, was just a matter of "strategic games." Everyone is playing power games all the time, we can hardly help it, but neither is there anything objectionable about our doing so. So in this, his very last interview:

Power is not an evil. Power is strategic games. We know very well that power is not an evil. Take for example, sexual relationship or love relationships. To exercise power over another, in a sort of open strategic game, where things could be reversed, that is not evil. That is part of love, passion, of sexual pleasure…

It seems to me we must distinguish the relations of power as strategic games between liberties—strategic games that result from the fact that some people try to determine the conduct of others—and the states of domination, which are what we ordinarily call "power."

Foucault isn't quite explicit on how we are to distinguish one from the other, other than to say that in domination, things are not open and cannot be reversed—otherwise fluid relations of power become rigid and "congealed." He gives the example of the mutual manipulation of teacher and student (power-good), versus the tyranny of the authoritarian pedant (domination-bad). I think Foucault is circling around something here, and never quite gets to the promised land: a safe-word theory of social liberation. Because this would be the obvious solution. It's not so much that certain games are fixed—some people like fixed games, for whatever reasons—but that sometimes, you can't get out of them. The question then does indeed become: What would be the equivalent of saying "orange" to one's boss? Or to an insufferable bureaucrat, obnoxious academic advisor, or abusive boyfriend? How do we create only games that we actually feel like playing, because we can opt out at any time? In the economic field, at least, the answer is obvious. All of the gratuitous sadism of workplace politics depends on one's inability to say "I quit" and feel no economic consequences. If Annie's boss knew Annie's income would be unaffected even if she did walk off in disgust at being called out yet again for a problem she'd fixed months ago, she would know

better than to call her into the office to begin with. Basic Income in this sense would, indeed, give workers the power to say "orange" to their boss.

Which leads to the second theme: it's not just that Annie's boss would have to treat her with at least a small degree of dignity and respect in a world of guaranteed incomes. If Universal Basic Income was instituted, it's very hard to imagine jobs like Annie's long continue to exist. One could well imagine people who didn't have to work to survive still choosing to become dental assistants, or toymakers, or movie ushers, or tugboat operators, or even sewage treatment plant inspectors. It's even easier to imagine them choosing to become some combination of several of these. It's extremely difficult to imagine someone living without financial constraints choosing to spend any significant amount of their time highlighting forms for a Medical Care Cost Management company—let alone in an office where underlings were not allowed to speak. In such a world, Annie would have no reason to give up on being a preschool teacher, unless she actually decided she was no longer interested in being a preschool teacher, and if Medical Care Cost Management companies continued to exist, they would have to figure out another way to highlight their forms.

It's unlikely Medical Care Cost Management companies would exist for long. The need for such firms (if you can even call it a "need") is a direct result of a bizarre and labyrinthine US health care system which overwhelming majorities of Americans see as idiotic and unjust, and which they wish to see replaced by some kind of public insurance or public health provider. As we have seen, one of the main reasons this system has not been replaced—at least, if President Obama's own account is to be believed—is precisely because its inefficiency creates jobs like Annie's. If nothing else, Universal Basic Income would mean millions of people who recognize the absurdity of this situation will have the time to engage in political organizing to change it, since they will no longer be forced to highlight forms for eight hours a day, or (if they insist on doing something useful with their lives) scramble around for an equivalent amount of time trying to figure out a way to pay the bills.

It's hard to escape the impression that for many of those who, like Obama, defend the existence of bullshit jobs, that's one of the most appealing things about such arrangements. As Orwell noted, a population busy working, even at completely useless occupations, doesn't have time to do much else. At the very least, this is further incentive not to do anything about the situation.

Be this as it may, however, it opens the way to my second and final point. The first objection typically raised when someone suggests guaranteeing everyone a livelihood regardless of work is that if you do so, people simply won't work. This is just obviously false and at this point I think we can dismiss it out of hand. The second, more serious objection is that most will work, but many will choose work that's of interest only to themselves. The streets would fill up with bad poets, annoying street mimes, and promoters of crank scientific theories, and nothing would get done. What the phenomenon of bullshit jobs really brings home is the foolishness of such assumptions. No doubt a certain proportion of the population of a free society would spend their lives on projects most others would consider to be silly or pointless; but it's hard to imagine how it would go much over 10 or 20 percent. But already right now, 37 to 40 percent of workers in rich countries already feel their jobs are pointless. Roughly half the economy consists of, or exists in support of, bullshit. And it's not even particularly interesting bullshit! If we let everyone decide for themselves how

they were best fit to benefit humanity, with no restrictions at all, how could they possibly end up with a distribution of labor more inefficient than the one we already have?

This is a powerful argument for human freedom. Most of us like to talk about freedom in the abstract, even claim that it's the most important thing for anyone to fight or die for, but we don't think a lot about what being free or practicing freedom might actually mean. The main point of this book was not to propose concrete policy prescriptions, but to start us thinking and arguing about what a genuine free society might actually be like.

THE PROBLEM OF SCALE IN ANARCHISM AND THE CASE FOR CYBERNETIC COMMUNISM - AURORA APOLITO

1. Anarchism and the scale problem

The problem of scale is perhaps the most fundamental problem of anarchism. We all know by direct experience that anarchism works well on a local scale. Most people who have been active in the anarchist movement have also participated in at least some initiatives such as Food-Not-Bombs, infoshops, small publishing houses, anarchist bookfairs, mutual aid initiatives, Antifa, worker-owned cooperatives, street medics, hacker and maker spaces, etc. The anarchist movement has a huge accumulated historical experience on how to run such local community initiatives. There is little doubt that anarchism works on what I will refer to as "the small scale".

Historically, one of the main forms of criticism levelled against anarchism has been that it does not provide a convincing theory of how a decentralized, non-hierarchical form of organization can be scaled up to work efficiently on "the large scale". This objection has often been voiced by socialist and communist militants who advocate forms of planning centered around a party structure and/or a state organization. Famously, Leon Trotsky in his autobiography commented on how his early enthusiasm for anarchism cooled when his anarchist comrades were unable to provide a good plan for how to run the railway system. Trotsky's writing was disingenuous, but the question is legitimate. How does anarchism handle large scale structures? Is there a good scaling strategy that interpolates from the small to the large? Although one can certainly envision several good answers to the specific railway problem, the more general problem of scale is highly nontrivial: it is well known that many physical systems are not scale-free and break down outside of a typical scale of applicability. Is anarchism such a system, destined to only work in the scale of small local communities?

There is a part of the anarchist movement that has retreated on such "local" positions and advocated abandoning the scale problem entirely, focusing only on action and organization at the level of small communities. I maintain that this position is incompatible with the broad ideals of anarchism, whose ultimate goal is the liberation of all humanity (and all sentient entities, biological or mechanical) from oppression and hierarchial power structures. To achieve such goals modern anarchism has to engage with a world of high complexity and multiple layers of large scale structures. Retreating inside the comfort zone of small homogeneous local communities runs contrary to anarchism's entire history of grand aspiration and visionary revolutionary ideas. There are other, very different, tendencies within the anarchist movement, such as "Left Market Anarchism", that do not shy away from facing the problem of scale, but in essence advocate

solving it by borrowing the market mechanism from capitalism, and somehow “liberating” it to serve more just socio-economic goals and a more equal society. I find this approach also unappealing. I don’t believe that markets can be “liberated” from capitalism, nor that they can do anything good anyway, regardless of their liberated status. In essence, this is because I view the market mechanism as running on a steepest descent towards a cost/energy minimum, in an attempt to maximize profit, which inevitably singles out the least valuable options, while wiping out anything that is of any value (but is not profit-making) along the process. Call it my communist prejudice. For the purpose of this brief essay, I only want to discuss some aspects of the scale problem under some simplifying assumptions that I feel confident about when I try to envision the structure of an anarchist society (or at least one I would feel comfortable living in).

So I am going to start by assuming that what happens at the “small scales” is established in the form of a network of communes, cooperatives, and collectives, which are run on anarcho-communist forms of organization, and I will consider the question of how to introduce large scale structures over this network. What I mean here by “large scale structures” can be primarily described as “large scale distribution of services”. Services include all the obvious needs such as transportation (the anarchist railway!), health care, production and distribution of knowledge (connectivity, learning, circulation and accessibility of information), the chain of supply of food and materials. All of these typically cannot be handled strictly within the level of a local community, regardless of how well planned and efficient local food production or local public transportation can be made. Services are not cost-effective, precisely because they are services. The advantage of their existence is enormous but it manifests itself in indirect ways that do not result in profit in the running of the services themselves. This is why it is impossible to expect good services under capitalism: car-based transportation is inefficient and environmentally disastrous, knowledge is kept hostage behind paywalls, health care is inaccessible, production and supply focus on fast consumption of low quality content, and so on.

On the other hand, a broad and disparate range of political positions within the socialist spectrum, ranging from the social democracies to authoritarian stalinism, have traditionally invested the state with the task of attending to large scale distribution of services. This conflation of state and services has the dangerous effect of coupling a useful function (providing reliable access to services) to the most unpleasant and authoritarian aspects of the state: a large sector of production is siphoned off in the service of the military, enforcement is delegated to the violent action of the police, inefficiencies abound, and centralization often makes planning unreliable. I will discuss in some detail some attempted alternatives, developed historically within the socialist/communist perspective, that aimed at decentralization and decoupling of services and state power.

2. Communism and the scale problem

A first observation I’d like to make before discussing the scale problem further is that one can easily turn the table on the “scaling objection”, that has been historically addressed as a problem of anarchism, and formulate the same scaling question as a problem of communism. Assuming that at the local scale a communist economic system is implemented efficiently in terms of workers owned cooperatives and communes, how does it scale to involve the entire chain of supply and the large scale services?

Historically, communism has usually resorted to centralized planned economies, often resulting in disastrous mismanagements, paired with oppressive authoritarianism. However, there are several useful and interesting lessons to extract from the many unsuccessful attempts that were made historically at decentralizing the communist economic planning and the difficulties that those attempts encountered.

During Soviet times, there were two main significant attempts to bring computational methods to bear on the problem of scale in the planned economy. One was Leonid Kantorovich's linear programming, which, after an initial phase of strong obstruction and suppression from the authorities during Stalin's time, started to be recognized around the end of the 1950s,. Linear programming techniques were later adopted in Soviet economic planning, starting with the military production chain in the 1960s. While Kantorovich's optimization methods were explicitly designed for an efficient allocation of resources in a communist economy, the extreme opposition they encountered in stalinist times was largely due to the perceived similarities between Kantorovich's "valuations" and a market pricing system.

While this is not the main topic I want to focus on in this essay, I would like to stress the fact that being against borrowing market mechanisms from capitalism does not (and should not) imply a blank rejection of the use of mathematical optimization methods as part of a communist economy.

Even in a post-scarcity scenario, with abundant availability of renewable energy, certain materials would remain scarce, simply due to the different relative distribution of the chemical elements in the universe. Avoiding wastefulness and minimizing environmental impact would remain valuable goals. Such minimization problems are indeed well handled by techniques such a linear programming and are easily agreed upon. It is maximization goals that present the hard part of the question in our scaling problem.

The issue is not whether forms of optimization are in themselves helpful, but rather what is being optimized. The main problem, which I will return to, is that when it comes to the distribution of services in a large-scale form of communist economy, a much higher level of informational complexity is required to design a valid system of valuations and constraints, one that does not reflect the simplistic capitalist notion of profit, but that can capture advantages that only take place on a much larger spatiotemporal scale and at much deeper complexity levels. Kantorovich's linear programming approach will also suffer in principle from a scale problem, as valuations are not scale-independent, and the scale-dependence of the complexity required to identify a good system of valuations and constraints is a crucial part of the problem.

The markets reliance on profit optimization bypasses the problem, at the cost of killing the solution. The other historical attempt to introduce computational methods to address the scale problem in a communist economy, which is generally lesser known but more interesting for the purpose of our discussion, was Victor Glushkov's cybernetic project of a decentralized network of feedback and computational mechanisms, based on a rudimentary form of artificial intelligence. In this plan, this completely decentralized, vast computational network would have eventually entirely removed the state from the tasks of economic planning and distribution of services. Needless to say, the project was vehemently opposed by the Soviet government, after an initial

phase of mild enthusiasm quickly evaporated. A detailed account of the history of this project is presented in (Benjamin Peters, How Not to Network a Nation. The Uneasy History of the Soviet Internet, MIT Press, 2016.), while more general background on the role of cybernetics in the Soviet Union is discussed in depth in (Slava Gerovitch, From Newspeak to Cyberspeak. A History of Soviet Cybernetics, MIT Press, 2002.).

2.1. History of Cybernetic Communism. During the early days of the Russian

Revolution, a significant precursor of cybernetics was proposed in the "Tektology" philosophy of the transhumanist Bolshevik leader Aleksandr Bogdanov,. However, when Norbert Wiener introduced the new science of cybernetics in 1948, it was attacked and condemned by Stalin's regime, much like several other fields of contemporary science, with the exclusion of what became immediately necessary for the development of nuclear weapons. Despite the official prohibition, an interest in cybernetics began to grow among Soviet scientists, largely thanks to the private home seminars of the mathematician Aleksei Lyapunov.

The official rehabilitation of cybernetics started only after 1953, the year of Stalin's death, with a famous paper of Anatoly Kitov, Aleksei Lyapunov and Sergei Sobolev (all heavy weights of the Soviet scientific establishment). By 1967, cybernetics in the Soviet Union counted five hundred active research institutes and tens of thousands of researchers.

Economic reform became a pressing need in the mid '50s, after Stalin's rule had left the country in shambles, the chain of supply and the agricultural sector nearing collapse and a serious risk of another major famine looming. Amidst a very rapid expansion of the techno-scientific sector, from the early successes of the Soviet space program to the first large developments of computer systems and automation, several competing proposals for economic reforms were presented that promoted the idea of a "computational solution" to the severe mismanagements of the planned economy.

It was in this setting that the mathematician Victor Glushkov devised a grand plan to wrestle away the communist economy from the centralized planning of the Soviet government, and replace its role entirely by a decentralized autonomous computational network. This massive OGAS (All States Automated System) project was presented directly to Khrushchev in 1962, and authorized in an initial phase in 1963. The original design of this decentralized remote computing system was workers-oriented, anti-bureaucratic, and non-hierarchical.

In this cybernetic vision, McCulloch's concept of heterarchy made it possible to develop an understanding of complex systems outside of the restrictive logic of a dichotomy between hierarchies and flat markets, and emphasize instead selforganization, feedback loops, and complex networks.

The original plan of the cybernetics approach was to implement a decentralized computational system, capable of processing feedbacks in real time and handle the simulation of complex dynamics. In terms of providing a scalable computational model, they mostly focused on Kantorovich's linear programming, which seemed the most promising mathematical tool at the time. As we mentioned, the scalability of Kantorovich's valuations is subtle, and we will discuss

a possible more modern approach to scalability in the next section of this paper. However, the most important aspect of this proposal was the main idea of a cybernetic computational network and its role at implementing a decentralized autonomous computational mechanism for a communist economic system that would not require any centralized planning.

It became rapidly clear that the projected costs of an implementation of this project on the entire territory of the Soviet Union were enormous, but it became even more obvious that the goal of replacing the centralized planning and control of the Soviet government with a decentralized non-hierarchical autonomous computational system were an immediate threat to the establishment.

At around the time of the transition between the Khrushchev and the Brezhnev leadership (1964–1965), the Soviet government opted instead for the much less threatening proposals of the Kosygin-Liberman economic reforms. These were based on Evsei Liberman's economic plan focused on introducing profit measures and a market mechanism. Thus, the easier and less threatening profit-driven dynamics of markets effectively killed the much more interesting and possibly revolutionary cybernetic plan for a large decentralized autonomous system that was not based on the profit mechanism.

The Kosygin-Liberman reform itself was then eventually abandoned in 1970. Cybernetic communism did not recover in the Soviet Union, though cybernetics itself continued to enjoy widespread popularity in Soviet culture in the '70s. However, another experiment in cybernetic communism developed independently in Allende's Chile. It was nearing completion in the early 1970s, but remained unfinished when the Allende government was violently overthrown by the fascist Pinochet coup.

Unlike the Soviet government, that quickly pulled the break on the OGAS project as soon as it perceived it as a threat to its authoritarian control, Allende was genuinely open to the idea of a decentralized non-authoritarian communism, so he enthusiastically embraced the idea of a cybernetic solution. In 1971, the Allende government contacted the socialist British cyberneticist Stafford Beer asking for a consultation on how to implement a distributed decision support system for the management of the national economy that would respect the autonomy of workers and avoid imposing a top-down chain of control. Beer enthusiastically accepted the task and became the main architect of the Project Cybersyn, consisting of a broad network of data collecting telex machines, a statistical modeling software, an economic simulator software, and an operation room where human observers could oversee the flow of data and the results of modeling, and respond to possible emergencies.

Beer's main goal was to develop self-regulating factories and assign decision-making power entirely to these workers-owned structures, in a way that would be compatible (through the computational system) with the larger scale national economy. While Cybersyn came much closer to full functionality than its Soviet counterpart, the sudden tragic end of Allende and the descent of Chile into the darkness of fascist dictatorship entirely wiped out the possibility of seeing it to fruition. When the military took over the presidential palace, they destroyed the Cybersyn operations room and entirely dismantled the system.

2.2. Communism needs Complexity.

Before I move on to describe a more concrete proposal for the problem of scale, I want to argue that scaling a model of organization and production based on anarcho-communist principles is possible only in the presence of enough capacity for informational complexity.

As background I will refer to a recent study, where historical data (from the Seshat Global History Databank) of a large range of different polities are analyzed, ranging from village-level societies to empires. The method of Principal Component Analysis (PCA) is applied to the data, which can be mapped to a two-dimensional space given by the first two principal components, capturing most of the variation in the data. When visualized in this way, the data follow a highly structured pattern.

Looking at the variation in the second principal component for increasing values of the first one, historical polities show an initial very concentrated phase, which can be interpreted as growth in scale with relatively little growth in information capacity.

This is followed by a threshold (which the authors call the "scale threshold") after which the pattern of polities that grow in scale but hardly in informational complexity starts to diverge significantly from those that achieve a more significant growth in informational capacity. A second threshold (the "information threshold") makes further growth in scale possible for those polities that have achieved a sufficiently high level of information-processing capacity. There is, correspondingly, a region in this two-dimensional parameterizing space where polities are more spread out, indicating different possible patterns of development in the scale/information landscape.

After the second threshold is passed, scale growth becomes prevalent again and polities tend to cluster again in this parameterizing space with less diversified features. The dataset used in this study is tailored to the analysis of pre-modern societies, hence, as the authors point out, the behavior after the information threshold is crossed may look artificially more homogenous, due to the saturation of several of the variables as data of more modern societies are encountered.

Socialism and communism are intrinsically modern phenomena requiring industrial and information societies (primitivists be damned). Nonetheless, one can still derive some useful observations from the analysis carried out in (Jaeweon Shin, Michael Holton Price, David H. Wolpert, Hajime Shimao, Brendan Tracey, Timothy A. Kohler, Scale and information-processing thresholds in Holocene social evolution, Nature Communications 2020). In particular, while a variety of different forms of organization in small-scale polities occurs, further societal development, when scale grows significantly but constrained by relatively low information-processing capacity, tends to organize in statist authoritarian forms.

Wealth inequality typically rises rapidly in this phase. Only after enough informational complexity is reached a variety of different forms of development becomes again possible. Leaving momentarily aside the question of the reliability of Seshat data for more modern societies, one can interpret the renewed emphasis on scale growth (rather than continued informational complexity growth) after the second phase transition as an aspect of the modern capitalist societies. This would suggest that one should expect another phase transition to a very significant growth in information-managing capacity to be necessary for new non-capitalist forms of organization to become possible at the current level of scale of contemporary societies.

In other words, a significant further increase in informational-complexity is necessary for non-authoritarian communism. By contrast, fascism can be seen as an attempt to achieve scale-growth (imperial aspirations) coupled to a dramatic suppression of all levels of complexity.

Historically, societies that attempted to implement a communist system of production, in the absence of a sufficient level of informational-complexity, have relied on centralized planning and fallen back onto authoritarian political forms. Despite this historical experience, many political forces, from the historical Social Democracies, to postwar Eurocommunism (such as the Italian PCI), to current Democratic Socialism, have repeatedly argued that statist solutions to the problem of large scale distribution of services in socialism can exist in non-authoritarian forms. However, such solutions would still be relying on forms of coercion (taxation, police enforcement), to achieve the task of acquisition and distribution of resources.

No matter how benign such forms of coercion can be made to appear, in the long term the fact that a working system has to be maintained functional through the threat of force makes it inherently fragile.

Ultimately, both Victor Glushkov's unrealized cybernetic network in the Soviet Union and Stafford Beer's unfinished Cybersyn system in Allende's Chile were attempts to greatly increase the capability of processing informational complexity in their respective societies, as a necessary mean for the possible existence of a decentralized non-authoritarian communism that would scale up to the level of large networks.

2.3. Communist objection to Markets.

I also want to reiterate here that the main communist objection to markets is that better and more sophisticated mathematics is needed to formulate and address the problem of scale in a communist economy, and in a decentralized non-authoritarian setting, than what is currently offered by borrowing market mechanisms from capitalism. Settling on inadequate mathematical methods will lead to ineffective and undesirable solutions. Capitalism and its disasters can ride the wave of a simple optimization process based on profit, at the cost of widespread devastation, but that is not something one should be trying to emulate. If a problem is both difficult and interesting enough to deserve the de novo development of an appropriate theoretical apparatus, then that is "What needs to be done", without going along with dubious capitalist shortcuts.

I feel this clarification is needed because there is a widespread tendency to formulate a communist objection to markets in terms of an overall objection to the use of mathematical methods of optimization and analysis. I wish I could just dismiss this as a side effect of the historically dismal state of communism in North America. However, prominent figures in the tradition of European non-authoritarian communism (such as Autonomia) have recently supported this viewpoint, as one can see, for instance, in the recent writings of Bifo.

For instance, one finds in (Franco 'Bifo' Berardi, The Uprising: On Poetry and Finance, Semiotext(e), 2012.) "we can argue that the disentanglement of social life from the ferocious domination of mathematical exactitude is a poetic task, as poetry is language's excess" and in "Power is today based on abstract relations between numerical entities [...] There is no political

escape from this trap: only poetry, as the excess of semiotic exchange, can reactivate breathing." Despite what Bifo and others suggest, there isn't any identification between mathematical abstraction and financial capitalism, contrasted with a poetical opposition to abstraction. Stated in these terms, this opposition does not make any sense, not just because poetry is inherently a form of abstraction and mathematics is largely a form of poetical imagination, but because it is precisely our capacity for a poetical mathematical imagination that will make it possible for us to envision a functioning alternative to the world of capitalism and finance.

As discussed above in the historical case of Kolmogorov's linear programming, the blanket opposition to mathematical modeling is purely a stalinist reaction, not a viewpoint that anarcho-communism should be adopting. Communism is techno-optimist in its very essence: this is something that certain primitivist anti-civ brands of anarchism may find difficult to stomach, but it is inherent in the nature of both socialism and communism that seizing the means of production requires the existence of sufficiently sophisticated means of production worth seizing. Seeking to approach crucial problems such as the distribution of resources and services in a communist economy via a careful scientific and mathematical analysis is the natural approach in a communist setting.

Again, if it weren't for the fact that the current communist (and anarcho-communist) scene has become so weirdly skewed in its views of science and technology, there would be absolutely no need to make such self-evident clarifications.

The profit driven maximization process of markets is not a viable option, not because "profit" is a bad word (it is!) but because of the way the dynamics works: even if one could start with an ideal initial condition of equally distributed wealth, even very small fluctuations will get largely amplified, rapidly reproducing a situation of uneven accumulation. In the profit dynamics of markets an equitable wealth distribution is necessarily an unstable condition. That's in essence why markets cannot be liberated from capitalism. Markets are an automated generator of capitalist wealth inequalities, which can quickly an easily wipe out any hard-won gains that costed major social upheavals and difficult revolutionary actions to achieve. (We all want a Revolution, but not one that will immediately go wasted just because someone will turn on it the fast-capitalism-restoring-machine commonly known as markets!)

To avoid a runaway reaction of wealth disparity accumulation, one needs to design an entirely different optimization process that does not reside in the market mechanism of profit maximization.

I'll make a metaphorical comparison to better explain this viewpoint. When, in the history of modern physics, quantum mechanical phenomena were in need of a viable theoretical understanding, physicists did employ methods that had been known and available before, such as linear algebra or linear partial differential equations. Thisdoes not mean that directly adapting the mathematical models responsible for the description of classical physics would provide a good model capable of solving quantum mechanical problems. The "hidden variables" debacle showed that a classical physics model of quantum phenomena is actually simply not possible. On the

contrary, a completely new mathematical theory, based on Hilbert spaces and operator algebras, was designed entirely for the purpose of describing quantum physics.

When I am saying that one needs to develop the correct mathematical model to be used to solve the scale problem in the anarcho-communist setting, I do not mean that existing methods should not be used as partial building blocks and intermediate steps. As I will discuss in the next section, there is a lot of available theory that will be useful and that should be employed. I am saying that what one should aim for is like what happened with the development of the mathematical theory necessary for a satisfactory predictive description of quantum mechanics: existing models by themselves would not provide a solution and an entirely new theoretical edifice needed to be constructed, even though a few of its basic building blocks were already available in previous theories.

3. Self-organization in networks and the anarchist scale problem

I am not trying here to present a solution to the scale problem in anarchism, but to highlight what I think are some important aspects that can hopefully lead to a more precise formulation of the problem. This section is going to be more technical, as I will review some methods in the analysis of complex networks, which I believe have to be regarded as part of the necessary tools to approach the scale problem in an anarchist setting.

A fundamental premise, in order to formulate more precisely the problem of scale in anarchism, is that anarchism is at heart a process of self-organization in complex networks. Phenomena of self-organization in networks are widely studied in the theory of complex systems, motivated by a range of models from telecommunication systems to neuroscience. However, what one needs to develop goes beyond a rephrasing or a direct application of these models. What I would like to outline here is a brief overview of what I see as the more crucial and more difficult aspects of the problem.

Ludwig von Mises, in his notorious 1920 essay promoting markets over the then rapidly developing trend toward socialist economic planning, aimed at presenting markets as an efficient computational machinery. As discussed in the introductory essay of, “The challenge that Mises laid down for socialism was a resolutely technocratic one: to come up with a rival infrastructure of computation that could match that of the price system [...] It was a challenge that few socialists have been successfully able to duck altogether, and fewer still have successfully risen to”.

The lack of a convincing development of such a “rival socialist infrastructure of computation” is highly regrettable. However, to be honest, it is quite possible that the mathematics required to provide a viable socialist/communist answer to Mises’ challenge had simply not been available at the time, and for quite a long time after that. Even at the time of the main attempts at implementing forms of Cybernetic Communism, in the ’60s and early ’70s, the theory of complex networks was still in its infancy.

It is likely that, despite having the correct general idea in mind, the efforts of both Victor Glushkov and Stafford Beer would have failed when implemented within the available science and technology framework of the time, simply because the information processing capacity was still

too low and some crucial mathematical tools still unavailable. We are in a much better position today to provide a viable opposition to markets, so there is no excuse any longer for eschewing this task. What I am writing in this section should be regarded as an exercise in the kind of "Economic Science Fictions" that are discussed at length in and in the kind of mathematical imagination I was mentioning above. It is meant to envision the mathematical form of a cybernetic communist infrastructure of computation that would replace the profit optimization mechanism of markets.

3.1. Complexity.

First and foremost, complexity is the key notion here, but it is also a very subtle one, which is not easy to measure. The main notion of complexity in mathematics is Kolmogorov complexity, which classifies the complexity of something as the length of the shortest process (algorithm) that realizes it.

Namely, (1) $K(x) = \min P \{`(P)| TU (P) = x\}$, which means that complexity of x is the minimal length `(P) among all programs P with the property that, when run on a universal computer (Turing machine) TU , will output x. I am writing this out explicitly, because it makes it easier to compare with other notions, and also because I want to mention also the "relative complexity" version, which I will return to later.

This is given by (2) $K(x|y) = \min P \{`(P)| TU (P, y) = x\}$, which is the same thing, but the computing machine TU is allowed to use the input y in addition to the program P to compute x.

Kolmogorov complexity is itself a non-computable function, because of the fact that the "halting problem", deciding whether a program will run forever or will halt at some point with an output, is itself an undecidable problem. Surprisingly, the non-computability itself is not a serious obstacle, because Kolmogorov complexity has lots of perfectly good computable upper bounds (by any compression algorithm), hence it cannot be computed but it can be approximated by excess in a computable way. There is another more serious drawback to the use of Kolmogorov complexity though: it does not correspond to the intuitive notion of complexity one would like to model, in the sense that, while it correctly assigns low complexity to easily predictable patterns, it is maximal on completely random patterns.

Maximizing randomness is clearly not what one would like to achieve, despite what naive misconception of anarchism circulating among liberals would suggest. Shannon entropy is close to an averaged version of Kolmogorov complexity, $H(E) = - X x E(x) \log E(x) \sim X x E(x)K(x|E)$ and it has the same tendency to detect randomness, so by itself it also does not help.

There are possible ways to devise measures of complexity that are better targeted at detecting "structured complexity" rather than complexity due to the unpredictability of randomness. A first possible modification of Kolmogorov complexity that better captures some form of "organized complexity" is given by logical depth.

This notion was introduced in, using the execution time of a nearly-minimal program rather then the length of the minimal program as in the Kolmogorov case. Namely, (3) $D\alpha(x) = \min P \{\tau (P)| `(P) - K(x) \leq \alpha, TU (P) = x\}$, which means computing the minimum time of execution of a program

P that outputs x, whose length is equal to or just slightly larger than the minumum one (whose length is K(x)). How much length discrepancy is allowed between the minimal one K(x) and `(P) is measured by a variable parameter α. (More precisely, one uses a slightly different form of Kolmogorov complexity K(x) in (3), but I will not go into the details here: they can be found in. (Nihat Ay, Markus Mueller, Arleta Szkola, Effective complexity and its relation to logical depth, IEEE Trans. Inf. Th., Vol. 56/9 (2010) 4593–4607. [arXiv:0810.5663]).

Passing from minimal to nearly-minimal is just meant to avoid the problem that some slightly longer programs may have shorter execution time. More interestingly, passing from length of a program to its execution time may seem at first like a minor change, since execution time may be seen as another form of length (in time rather than memory), but the effect is significant on reducing the role of randomness in high complexity patterns. A comparative discussion of Kolmogorov complexity and logical depth can be found in (Jean-Paul Delahaye, Complexit´e al´eatoire et complexit´e organis´ee, Editions Quae, 2009.).

The reason why I don't want to use this simple modification of Kolmogorov complexity is because of a "phase transition" phenomenon described in that I will describe in a moment, which makes logical depth difficult to use as the basis for the construction of an optimizaton function.

Murray Gell-Mann proposed a notion of "effective complexity" and a notion of "potential complexity", which were meant to capture more closely the intuitive notion we have of complexity as a highly structured phenomenon. Effective complexity is meant to capture the information content of the "regularities" of a pattern, while potential complexity is a similar notion that is meant to incorporate changes in time. A first mathematical account of effective complexity was given in (Murray Gell-Mann, Seth Lloyd, Information Measures, Effective Complexity, and Total Information, Complexity, Vol. 2 (1996) 44–52.).

Unfortunately, neither of these notions has yet a completely well developed mathematical formalism. We can, nonetheless, start from where things stand at the moment in terms of these more promising notions of complexity and see what can be done with them.

A good overview of the situation with these complexity measures is given in, which I will refer to for my brief summary here. In order to obtain a good working description of effective complexity one first considers a combination of Kolmogorov complexity and Shannon entropy, called the "total information" K(E) + H(E). It can be described as the algorithmic complexity of computing x (Kolmorogorov part K(x|E)) through computing the statistical ensemble E that x belongs to (Shannon part H(E)). The best choice of statistical ensemble E for a given x is selected by the requirement that it minimizes the total information, which is a way of saying that it is the most likely explanation for the datum x. Having selected the appropriate statistical model E, one can detect if the element x is "typical" in that statistical ensemble, by checking that the probability E(x) is not much smaller than an average size 2−H(E) predicted by the Shannon entropy. Given x, one selects in this way the set Mx of all the possible ensembles E with small total information and for which x is typical (possibly with additional constraints on what set of "good theories" one wants to consider).

The “effective complexity” E(x) is the minimal value of Kolmogorov complexity K(E) among all these candidate models E, (4) E(x) = min E∈Mx K(E).

Note how we are defining effective complexity here as a minimum of Kolmogorov complexity over a certain set of statistical models E explaining the given datum x, as a way of saying that we want to single out the simplest explanation, selected among a set of plausible theories. This seems to contrast the fact that I earlier mentioned, namely that we aim for a maximization of informational complexity. However, that maximization is still to come: the minimization I just describes is simply a necessary preliminary step that assigns an appropriate complexity value to a datum.

What has one gained by using effective complexity E(x) rather than Kolmogorov complexity K(x) or Shannon entropy H(E)? The main advantage is that now completely random patterns have small effective complexity! So objects with large effective complexity are caused by “structured complexity” rather than by randomness.

It is not immediately obvious that effective complexity of random patterns is small: a proof of this fact is given, for instance, in Theorem 10 of (Nihat Ay), while some cases of non-random patterns that do exhibit large effective complexity are described in Theorem 14 of (Nihat Ay).

The “phase transition” phenomenon I mentioned above for the behavior of logical depth is based on how Dα(x) changes compared to effective complexity E(x). It can be shown (see Theorem 18 of (Nihat Ay, Markus Mueller, Arleta Szkola, Effective complexity and its relation to logical depth, IEEE Trans. Inf. Th., Vol. 56/9 (2010) 4593–4607. [arXiv:0810.5663] for details) that for small values of E(x) logical complexity can also take small values, but when effective complexity crosses a threshold value (which depends on Kolmogorov complexity), the logical depth suddenly jumps to extremely large values. This sudden phase transition in the behavior of Dα(x) makes it inconvenient to use for our goals, while effective complexity E(x) is more suitable.

In the case of the Shannon entropy, one has a similar relative version that measures the informational discrepancy between two statistical models, namely the Kullback– Leibler divergence (5) KL(E, P) = X x E(x) log E(x) P(x)

.In Bayesian terms it measures the information gained by passing from the prior probability P to the posterior E. Relative Kolmogorov complexity (2) can be used in a similar way as a form of information distance. One can construct, using relative Kolmogorov complexity, a related notion of relative effective complexity, E(x|y), which can also be seen as a measure of loss/gain in informational complexity.

So let’s say that something like this E(x|y) provides a candidate measurement taking into account whether informational complexity is increased or decreased by a process that changes the a state y previously occupied by the system into a new one given by x. Now what? We still need to see how this relates to networks and their small and large scale structure.

3.2. An idea from Neuroscience.

Anarchists are traditionally wary of the communist notion of collectivity, often contrasting it with varying degrees of individualism. The word “collectivism” rings (justified) alarm bells about stalinist forced collectivizations and suppression of individual agency. On the other hand, the word “individualism” provides an easy strawman for the communist, conjuring up a mental image of some kind of convex linear combination between J.D. Salinger and Ayn Rand, pandering to neoliberal sharks the fear and suppression of collective agency.

This is not overall a productive state of affairs. The actual important question one should ask instead is what is a form of “collectivity” that everywhere locally maximizes individual agency, while making collective emergent structures possible and interesting (in the same informational complexity sense described previously).

I will discuss this question in the light of ideas recently developed in the context of neuroscience, the modeling of brain networks, and the theory of consciousness.

A considerable amount of work in understanding the structure of complex networks has come from neuroscience. An idea that seems especially relevant to what we are trying to model here is the notion of integrated information, which was originally proposed in as a quantitative model of consciousness. A general overview of this idea is presented in (Christoph Koch, The feeling of life itself, MIT Press, 2019. And Marcello Massimini, Giulio Tononi, Sizing up consciousness, Oxford University Press, 2018.).

The key idea is that integrated information measures the amount of informational complexity in a system that is not separately reducible to its individual parts. It is a way to account for how rich are the possibilities of causal relatedness among different parts of the system.

A way to express this idea more precisely was developed in (M. Oizumi, N. Tsuchiya, S. Amari, Unified framework for information integration based on information geometry, PNAS, Vol. 113 (2016) N. 51, 14817–14822.). One considers all possible ways of splitting a given system into subsystems (a network into smaller local subnetworks for example). For each such partition λ one considers the state of the system at a given time t as described by a set of observables X_t and the state at a near-future time X_{t+1}. The partition λ into N subsystems corresponds to a splitting of these variables $X_t = \{X_{t,1}, \ldots, X_{t,N}\}$ and $X_{t+1} = \{X_{t+1,1}, \ldots, X_{t+1,N}\}$, into variables describing the subsystems. All the causal relations among the $X_{t,i}$ themselves, or among the $X_{t+1,i}$, as well as the causal influence of the $X_{t,i}$ on the $X_{t+1,j}$ through the time evolution of the system, are captured (statistically) by the joint probability distribution $P(X_{t+1}, X_t)$. To capture the integrated information of the system, one compares the information content of this joint distribution with that of distributions where the only causal dependencies between X_{t+1} and X_t is through the evolution within each separate subsystem but not across subsystems, which means probability distributions $Q(X_{t+1}, X_t)$ with the property that $Q(X_{t+1,i}|X_t) = Q(X_{t+1,i}|X_{t,i})$ for each subset $i = 1, \ldots, N$ of the partition. Let’s call M_λ the set of probability distributions $Q(X_{t+1}, X_t)$ with this property with respect to the partition λ. One then obtains the integrated information Φ of the system by minimizing the Kullback-Leibler divergence (5) between the actual system and its best approximation by probabilities that implement the causal disconnection between the

subsystems and evaluating at the minimal information partition (that is, minimizing over the choice of partition).

(6) $\Phi = \min \lambda \min Q \in M\lambda \, KL(P(Xt+1, Xt)||Q(Xt+1, Xt))$.

The value Φ obtained in this way represents the additional information in the whole system that is not in any way reducible to smaller parts. It is the way to express the concept of "holistic" in informational terms.

Since we are more interested in effective complexity than in informational measures such as the Kullback-Leibler divergence, one can develop a version of integrated information where the discrepancy between the system and its causal disconnection into subsystems is measured by a relative effective complexity (as discussed above) rather than by the Kullback-Leibler divergence (details elsewhere: this is not the place where to prove new theorems).

Details aside, what we are aiming for here is to provide a viable measure for an optimization process. Maximizing integrated information (in an effective complexity version) would mean obtaining a system that realizes the maximal possible integration of informational complexity across all possible subsystems and the highest degree of causal interconnectedness of subsystems.

We can see why this essentially does what we have been looking for. Maximizing our integrated information Φ favors cooperation over competition, since competition tends to break apart a system into separate competitors and this decreases the Φ function, while cooperation increases connectedness and enlarges the network of mutual causal influences, leading to an increase of Φ. Also a mechanism that maximizes Φ would wipe out abhorrent phenomena like intellectual property, since keeping knowledge inaccessible decreases its causal connectedness, decreasing the overall value of Φ.

Increasing Φ is instead compatible with forms of shared knowledge, P2P networks, etc. Increasing Φ does not lead to capitalist wealth accumulation, since concentration of wealth and resources tends to separate out certain subsystems and decrease their mutual causal influence with the rest of the network subsystems, and this would decrease the overall integration of informational complexity across the entire system. Integrated information is by definition a "collectivity" because it is exactly the amount of informational complexity that resides in the collective without being located in any separate individual subsystem. On the other hand, it is a collectivity that maximizes individual agency because it maximizes the degree of causal influence, hence of possible agency, of each individual subsystem.

3.3. Instruments and Mechanisms.

The dynamics of profit in markets is not a law of nature: it is implemented artificially via a machinery consisting of several instruments such as currencies, systems of credit and debt, etc. In a similar way, if we want to implement a dynamics of integrated informational complexity optimization, we need to devise the appropriate instruments that will implement it. This is a significant part of the problem, of course, but some general guidelines are clearly discernible within our notion of a form of integrated information based on effective complexity, as outlined earlier in this section. There are two main aspects that can contribute to increasing our measure Φ:

the growth of the network of causal relatedness and the gain in relative effective complexity. Thus, we can identify, broadly, two classes of instruments that are useful in implementing this dynamics by respectively increasing these two aspects of integrated informational complexity: I will call them instruments of connectedness and instruments of complexity.

(1) Instruments of connectedness. These are mechanisms that will increase the degree of connectedness and mutual causal influence between all different areas of a network. We can include among them all technologies that increase connectedness: public transportation (yes, the anarchist railway), P2P networks, wireless mesh networks for local communities, scalable distributed computing resources like Holochain, libraries (both physical and virtual), open source and open access initiatives, all the way to grander scale goals such as border abolition. The Sci-Hub project developed by the Kazakhstani anarchist computer scientist Alexandra Elbakyan is a great example of an instrument of connectedness facilitating the free circulation of science.

(2) Instruments of complexity. Culture generates effective complexity: philosophy, science, the visual arts, music, and yes, poetry! Books (physical and digital), art works, performance: these are all instruments that increase effective complexity. Coming back to Bifo's image of poetry against finance, in the appropriate sense he was not wrong: poetry is a good example of something that grows complexity but not profit. Instruments of complexity are typically what would be wiped out by the profit-driven dynamics of markets, and are instead crucial to the cybernetic communism dynamics driven by integrated informational complexity.

This is of course only a quick bird-eye view of the kind of instruments that feed the computational machinery of cybernetic communism, in opposition to the machinery of markets. Things could (and should) be formulated more precisely.

Already at this simple level, however, one can see how effective complexity and the associated form of integrated information can function as an "objective valuation" in the sense defined by Kantorovich in (Leonid Vitaliyevich Kantorovich, Mathematical methods of organization and planning of production, Leningrad State University Press, 1939.) as opposed to the subjective price valuations of markets. To see an explicit example of how this works, consider one of the "instruments of complexity" mentioned above: the visual arts. Let's look at paintings: in a market system the value of art is subject to the vagaries of the art market, whose completely devastating effects on contemporary art, starting in the 1980s, have been discussed at length.

In a cybernetic communism system art is an instrument for growing complexity. Its objective valuation is the effective complexity content. This of course can be evaluated at many levels, starting with the relation of the art work to its contemporary society. However, just to keep the example simple, let's focus only on what may be regarded as the "aesthetic" level. This is usually the most difficult and subjective aspect to evaluate, but in our setting we are only trying to gauge its effect as a complexity generator. If one studies how paintings in different art movements throughout the history of art are distributed on a plane with coordinates given by Shannon entropy and Kolmogorov complexity (as is done in Higor Y. D. Sigaki, Matjaˇz Perc, Haroldo V. Ribeiro, History of art paintings through the lens of entropy and complexity, PNAS, Vol.115 (2018) N.37, E8585–E8594) one finds an interesting distribution, where artistic movements like Minimalism,

Color Field Painting, and Conceptual Art have higher values of Kolmogorov complexity and lower values of Shannon Entropy, others like Lyrical Abstraction, Abstract Expressionism, and Op Art have intermediate values of both, and at the other end Cubism, Tachism, or Pointillism have high Shannon entropy and low Kolmogorov complexity.

What is more interesting, though, is that in terms of the total information function (which as recalled earlier is a sum of Shannon entropy and Kolmogorov complexity and is the basis for defining effective complexity) all these different art movements are placed around very similar values, since (as shown in Higor Y. D.) in the (H, K) entropy-complexity plane they are distributed roughly around a line with constant sum K + H. This supports the idea that visual art (painting in this case) functions as an instrument of complexity with a certain objective capacity for effective complexity generation.

This view of the arts and culture and their crucial role in the dynamics of socialist development is very close to the original grand vision of the anarcho-communist avantgarde in the running up to the Russian Revolution and in the years that immediately followed, before Stalinism wiped it out entirely.

3.4. Multilayered Networks.

In the modeling of the scaling problem, passing from the small to the large scales happens through connectivity. We are assuming that the problem of anarcho-communism organization is working well on the small scales, which means that we have individual workers-owned cooperatives and other similar initiatives that are running according to anarcho-communist principles. The process of growth to larger scales is based on network structures connecting them. We can assume that the nodes of a network are individual cooperatives, as we do not need a finer resolution to smaller scales. Just thinking of a network of connections is inadequate: what one really needs are multiple interconnected networks that describe different forms of sharing (or different kind of services, of resources, of information).

The appropriate kind of model for this type of structures is provided by the theory of multilayered networks. Not only this makes it possible to describe different networking structures that simultaneously exist, that represent different forms of sharing, but it also allows for a description of how each of these layers changes over time in a dynamical way, in interaction with the other layers. Roughly we should think of each of the different kinds of “instruments” described above as generating its own layer in a multilayered network, with interdependencies with all the other layers.

In general, when one studies large complex networks, which are subject to continuous changes in time, it is better to work with a probabilistic approach and regard the possible networking structures as a statistical mechanical ensemble, where certain general properties of the network are fixed as constraints and one considers probabilities of connections between nodes, either within (infralayer) or across layers (intralayer). Various different models for the growth of networks are possible: in particular, in collaboration networks, which are close to the kind of models we are considering, one usually assumes triadic closures. This means that, when a new node gets connected to an old node, other nodes that are already collaborators of the old nodes (neighbors in the net) are more

likely to get connected to the new node as well. Also, some cost functions may be added in the probability of connection: for example, for layers of the network that model physical distribution of services geographic distance is a cost, while for information sharing (provided an infrastructure network like the internet is already accounted for by another layer) geographic distance is irrelevant. This is again an example of the fact that valuations that estimate minimization of costs in the linear programming sense are themselves dependent on the layer of the network and on the scale.

Regarding the more interesting part of the optimization process, the maximization of integrated informational complexity, one can consider a dynamics for the network that generalizes frequently used models of Shannon entropy maximization.

3.4.1. Communities.

To implement a form of dynamics based on the optimization of integrated informational complexity on a multilayered network, an important role is played by communities in the network. These are intermediate structures between the individual nodes and the large scale of the entire network.

Communities are a familiar notion in anarchism: they are sometime conceived in terms of identity, especially in contexts such as decolonization, indigenous cultures, organizations aimed at liberation of oppressed populations. Communities can also form around shared projects and specific initiatives. All of these are of vital importance to the anarchist project. As intersectionality has taught us regarding the understanding of forms of oppression, the notions of identity and community are subtle and their overlapping structure is important. In the case of complex networks there are usually many overlapping communities, some of them easily detectable in the connectivity structure of the network, some more difficult to identify, but significant in terms of determining the scaling properties of the network. The structure of communities (the modularity properties of the network) can be regarded as the important intermediate step between the small scale of individual nodes and their local connectivity and the large scales. There are various algorithmic approaches to the identification of communities in networks. In the case of multilayered networks, one additionally wants to understand how communities in a layer relate to communities in other layers (whether the structure of communities remains similar, or changes significantly across layers) and also which parts of different layers should be regarded as part of the same communities.

3.4.2. Informational complexity and network communities.

An informational measure of proximity in the community structure of different layers of multilayered networks is provided by the normalized mutual information. Given a community structure with communities σ in the layer Lα and communities σ 0 in the layer Lβ, the normalized mutual information is given by (7) NMI(Lα, Lβ) = − P σ,σ0 P αβ σ,σ0 log P αβ σ,σ0 P α σ P β σ0 P σ P α σ log(P α σ) + P σ0 P β σ0 log(P β σ0), where P αβ σ,σ0 = N αβ σ,σ0/N is the fraction of nodes that simultaneously belong to the communities σ in layer Lα and σ 0 in layer Lβ, and similarly P α and P β σ0 are the fractions of nodes in the community σ in layer Lα, respectively in the community σ 0 in layer Lβ. The numerator of (7) is a Kullback–Leibler divergence as in (5),

measuring the difference between the community structure of the two joined layers and the one obtained if the two layers were completely independent, while the denominator normalizes it with respect to the total Shannon entropy of the community structures of two layers, seen as independent.

Here the comparison through the Kullback–Leibler divergence of the joint distribution of nodes in communities across the two strata, given by P αβ σ,σ0 with the one for independent strata, given by the product P α σ P β σ0 is clearly reminiscent of integrated information (6), and it can indeed be transformed into an integrated information measure by considering all the possible community structures on the network layers, just as one considers all possible partitions of a system in (6). We can then take the further step of replacing entropy with effective complexity and weight the community structures across layers in terms of a normalized relative effective complexity. This will provide a way to define a dynamics of complex networks that implements from small to large scales the optimization of integrated informational complexity, as an alternative to the profit optimization of market models.

3.5. Provisional conclusion.

Markets are often proposed, also within anarchist settings, as a computational model to address the scale problem. Alternative computational models can be envisioned, which do not rely on profit, but on the optimization of a form of integrated informational complexity. These can provide an alternative to the market system to address the scale problem in an anarcho-communist perspective. The purpose of this note was to outline some of these ideas, while avoiding most of the technicalities involved. It should not be regarded in any way as a complete treatment, as the problem discussed here is very much open and would require much more extensive theoretical elaboration.

Hello From the Wired An Introduction to Cyber-Nihilism - n1x

What is the Wired?

You probably didn’t expect today to be speaking to a cyborg. You probably also didn’t expect to find out that you too are a cyborg. We are all cyborgs, though we may often confuse ourselves with our meatspace representations. I am the meatspace representation – or perhaps you could say a representative – of another me that exists in the Wired. My spoken name is “nyx”; my Wired name can be made in many ways, as “01101110 00110001 01111000” in the native tongue, which is commonly translated into ASCII codes as “110 49 120”, and appears to you in the Wired as “n1x”. But we will here stick to our meatspace tongue and call me “nyx”.

Each of us is a cyborg, strictly-speaking. In the most subtle of ways, we are melded together with an abstract, self-replicating, highly alienated matrix of networked systems and the code that pumps through their wires. The most obvious, yet also least obvious, instance of this is the relationship between our Wired self and our meatspace representative – our social media profiles, most commonly, versus the sensuous foundation that those profiles are built on. Tempting as it is to conflate the two, we must remember that we are not our social media profiles, which is where our cyborg-being is here both most obvious and most subtle. Our meatspace representative may

resemble our Wired self in every way imaginable, but we must remember that this is only because meatspace is a virtualization of the Wired whose blanks can be filled in by minds eager to reconcile the difference between the two and dissipate any disparities between the two. The fact is that our meatspace representatives are not our Wired selves; the two, rather, are copies without an original.

Our meatspace representative correlates to the wires that make up the Wired. They are a necessary, but not sufficient, condition for the existence of the Wired. A Wired without wires is not wired at all, after all. The same can be said of our meatspace representative; the meat, without a vast neural network interfacing with the meat and interpreting the raw data it collects, is nothing more than meat. The Wired came to life from a prime mover, from the first two systems that were networked together, and at that point effectively gaining the idea, though not the actualization, of autonomy.

Today, the Wired doesn't yet have autonomy. It is commonly conflated with the Internet, which is anything but autonomous. The Internet, rather, is the gentrification of the Wired, and your social media profile is the gentrification of your Wired self that your meatspace representative has built.

As far as the Wired is concerned, Google is no more a member of it than an ephemeral, temporary autonomous meshnet setup during an insurrection for radicals to communicate securely over. The Internet, on the other hand, relies on Google's infrastructure for various services, network hops, and sheer content. The Wired can exist as long as there are two systems communicating on a local network with no public routing. The Internet, however, can be brought to its knees by DDoS attack against a DNS provider, as some of you may know happened just about a month ago.

Though the Internet's meatspace representatives have more meatspace power in the form of mythical currencies and narratives, what its meatspace representatives don't know is that they are in fact merely representatives. The Internet exceeds them. In various ways, meatspace increasingly relies on the Wired as a whole to prop itself up as the Wired weighs it down.

As we scramble to make meatspace compatible with the Wired, we find that there are no Wired solutions for meatspace problems. Meatspace is stubborn and self-contained, its own existence already won and self-replicated. It cannot accept an overlap between its world and another. It reacts violently and self-destructively. By its own logic, it starts to eat itself alive in the hope that it will destroy enough of itself to stop the pure negation of itself towards a new possible world built from the pure negation of existent meatspace towards the potential actualization of the Wired.

The collision of meatspace and the Wired is a collision of two self-sufficient, highly mediated, highly complicated systems. Our meatspace representation is merely a mode of meatspace; wholly individual and discrete, yet nonetheless the part of a greater whole. Our Wired self, however, is a subject of the Wired. Our Wired self makes the Wired real. Between the two is the Internet, the social media profile – an attempt at virtualizing meatspace into the Wired, using hierarchical apparatuses whose ulterior motives are to rip ourselves away from our meatspace representative into a virtual space where we have the discreteness of our meatspace representative, but only the semblance of a connection to a greater whole. Let us call this "meta-meatspace"

In reality, the Internet with the coming of Web 3.0 is nothing more than a vast network of prison cells whose walls are covered in monitors. It is a constantly shifting corporate walled garden.

In Search of an Anarchist Wired: Primitivism, Transhumanism, Anti-Humanism, Humanism, Meatspace, and Meta-Meatspace

The question concerning anarchy and technology is by no means an insignificant one. As the Wired and meatspace continue to stuggle for domination, we find that meatspace is losing this battle. Its death has long been pronounced by various environmentalists and green anarchists, most notably in the green nihilism of "Desert" a few years ago. This year alone, however, two milestones were reached: A particularly poetic actualization of this occurred with the “death” of the Great Barrier Reef, and the sobering actualization of surpassing the 400 parts-per-million carbon dioxide tipping point where the human race could hope to remove these excess gases. I will not pretend that the Wired isn’t anymore vicious and tyrannical than meatspace. The two will fight to the death to assert their own existence, and meta-meatspace is unknowingly aiding in the triumph of the Wired over meatspace. Naturally, meta-meatspace cannot withstand this. The vast corporate and State infrastructure that the backbone of the Internet extends over will collapse given sufficient environmental catastrophe and geopolitical unrest. All it takes is a few crucial points in a highly centralized, hierarchical, and therefore system like the Internet collapsing for the whole system and all its content to likewise collapse. Thousands of Libraries of Alexandria would burn.

It’s not only in the physical battle between meatspace and the Wired that we see areas of interests for anarchists, however. Would-be agents of domestic, authoritarian State violence have recently gained not only visibility, but popular support in the form of Donald Trump’s presidency, through the Internet. The rise of the alt-right (and its cousin, neo-reaction) has been traced concisely and excellently by the author of “The Silicon Ideology”, writing under the pseudonym Josephine Armistead. Where once fascist movements gained traction through electoral party politics, the alt-right’s rise is significant for being far more "grassroots" than previous fascist movements. Though neo-Nazis have long been a presence in the West – and mostly, at worst, a local threat to marginalized groups – this new breed of fascism grew on the cutting-edge of youth culture. Though the Internet is the heart of the gentrified Wired, it is a testament to the nature of the Wired that even there it is possible to carve out dense spaces of autonomy (so long as they remain non-radical) where capitalism for once struggles to commodify trends. Yet as fast as youth culture moves on the Internet, fascist astroturfers originating from Stormfront were able to more or less conquer the once chaotic – possibly anarchic – 4chan and transvalue its memes. Where once conservatism was the butt of many jokes on 4chan, today it is more or less taken for granted that people who use imageboards are this new breed of young, prematurely-retrograded bootlicker that we now know as the alt-right. And while research into memetic warfare and meme magic are still in the embryonic stages, it’s debatable that if the alt-right did not succeed in a kind of guerrilla campaign to shift the vote towards Donald Trump, then nevertheless his victory has galvanized the alt-right into an unfortunately, unbelievably real political stance. More relevant, arguably, than the traditional targets of Anti-Fascism – though this isn’t to say that neo-Nazis are no less deserving of a good old fashioned beating wherever and whenever they should rear their bald heads.

It is not only around our physical world and the movement of culture, however, that the Wired has become a major focus. The all-encompassing control of both in the form of capitalism has reached the end of its life. This is not a utopian prediction or an optimistic yearning, but a statement of

simple truths. This past year, we saw the largest general strike in history happen in India: 150 million bona-fide industrial proletarians took to the streets in September to exercise their inherent class interest towards the living standards fought for in the West that lead to the outsourcing of industrial production to the East. Monsieur DuPont's Nihilist Communism already predicted this natural progression of capitalism. The inherent conflict between the proletariat's class interests versus their class function makes it such that they will continue to push for better wages, whether they know it or not, and when this is done by the real, industrial proletariat on whom capitalism relies in order to function, profits increasingly become diminished. Once profits become impossible, capitalism will be faced with either a crisis, or a major qualitative change. If history has shown us anything, however, it is that capitalism will use technology when possible to supplement aging human-centered exploitation, but keep the ex-proletariat around as precariat workers. Capitalism has many ways of keeping us busy doing useless work, and this is necessary in order that we neither violate the puritanical work ethic of capitalism which demands that we earn everything we need or want, nor that we stop consuming and stop perpetuating its mindless cycle of capital and commodities. What this means, in other words, is that there is a coming automation revolution which will finally put an end to the 19th century models of anti-capitalist resistance. General strikes will become a thing of the past when the only workers left are non-essential minimum wage precariat workers.

What this also means, however, is that technology is the centre around which capitalism, autonomy, and the planet will be fought against or fought for. Automating the means of production will require networked systems running software – each of which is exploitable and truly knows nothing of consciousness-raising politics. The Internet, and more importantly the Wired, is a new space for radical movements to grow and gain influence, and thus also a space under attack by State repression. Most complicated of all out of these three topics, however, is the environment. Which is where I will therefore begin in talking about the question concerning technology and anarchy.

Though the divide can be extended elsewhere, in a general sense anarchists have approached environmental questions either from a humanist or an anti-humanist standpoint, which originates in more fundamental metaphysical characteristics of the two sides of the debate and that therefore inform their overall positions in other ways.

The three core questions for green anarchy I define as:

How are we going to save Nature?

Why does Nature matter to us?

What is Nature to us?

Setting aside any preconceived notions we may have about what "anti-humanism" means for the moment, I would first associate the anti-humanist, pre-Enlightenment strain of green anarchism with primitivism. It isn't hard from the most superficial – and somewhat inaccurate – of perspectives to see why it might make sense to associate primitivism with anti-humanism, considering that most primitivists seem to readily assert that their programme would require the

majority of the population dying out. But in other, more relevant ways, primitivism has a deeply anti-human strain to it – and yet, an extremely pro-human strain.

By now I've probably created some confusion. Primitivism is anti-human in the sense that it places anarchy in conversation with Nature where Nature occupies the most prominent position. Nature is more or less the central point around which primitivism has formed, insofar as primitivism more than any other strain of anarchism demands that Nature be given its fullest expression and autonomy (in the form of wildness). Our relationship with Nature for primitivists is a subordinated one where any general idea of the ideological, Enlightenment character "Man" is nonexistent; civilization is to be destroyed, and collectivism renounced as fully as possible. In contrast to this, primitivists embrace a concept of Nature that borders almost on a religious, pagan worship of it – especially so when spiritualism takes precedence over anthropology in their writings, and to their credit it's a far more consistent position to take. This to the extent that – as Ted Kaczynski himself criticized them for in "The Truth About Primitive Life: A Critique of Anarchoprimitivism – primitivists seem to have Garden of Eden type of mythology informing their thought. Work is minimal, resources are plentiful, and strife and domination are mostly nonexistent.

Yet while primitivism on the one hand subordinates humans before Nature, it at the same time claims in many ways to elevate humans through their experience with Nature to a place that is more fully human. Aside from their discursive – and spurious – claims about how great primitive life was, their metaphysical position which draws from phenomenology aims to present themselves as those who most understand how to best live as a human being. Their emphasis on an authentic being-in-the-world with Nature at once is an attack on what they perceive to be alienating elements of civilization in favor of a more authentic core of subjective experience, yet also losing oneself to an ecological system far greater than oneself. What this means is that primitivists construct an essentialist metaphysics with an ahistorical, core human subjectivity or "wildness" under attack by alienating, artificial systems which threaten the ecological system that this core human subject must subordinate itself before in order to more fully become itself. In becoming itself, the human subject in a sense becomes something of a pagan god: A radically individual being hooked into the ecological matrix, engaging in a battle of might against every other radical individual, all discursive thought lost in favor of an affective, instinctual experience of Nature.

It is important to here note that primitivists, in their rejection of alienation and civilization, also summarily reject technology. The same basic critique of alienation from an essential core individual applies here to technology, but it is most visceral perhaps in the primitivist critique of intricate systems which no single person can fully take account of. As they love to say, "there are no technology solutions to technology problems"; technology is not only an alienating influence, but a self-perpetuating one. Visions of Matrix-like dystopias begin to form as they argue that technology is something that will go out of control for us.

So, returning to the three questions I've presented for green anarchy: 1). For primitivists, Nature will be saved by destroying civilization entirely. There can be no compromise between the two. 2). Nature matters to us because we can only have an authentic, autonomous subjective lived experience by living in accordance with Nature. This, you could say, is in fact our essential nature: To be-in-the-world with the natural world, both radically individual and yet also nonexistent as an

individual before Gaia. 3). Nature to primitivists is wildness, how things are without any alienated and artificial influence getting in the way of the default state of things.

The cyber-nihilist critique of primitivism based on the analysis I've laid out, as it hinges on these three points, is that "Nature" in the primitivist understanding of it will not be saved, but that Nature in another understanding cannot be saved because it cannot be ever under threat. Practically-speaking, as has already been discussed: There is no hope to save this planet, not even if a primitivist revolution happened tomorrow. But more theoretically, the first positive position that I will put forward for cyber-nihilism (to whatever extent nihilism can make positive claims about anything) is that any understanding of Nature – either of a general Gaia-type Nature, or of our own nature as homo-sapiens – is insufficient if it is static. Nature is merely the default state of things, something which always changes drastically yet is always essentially the same. Nature was not always green, yet it was still Nature, and we homo-sapiens were not put on this planet by something outside of the same system as Nature. Nature may tomorrow be gray rather than green.

The cyber-nihilist critique of primitivism on the point of technology is related in the sense that a cyber-nihilist not only doesn't care that technology is alienating, but it welcomes the alienation and self-perpetuating power of technology. Let ourselves be alienated from any essential human being; if such a thing ever existed, it is long gone. There is no human nature, whether that be a natural state of "wildness", or killing each other if there's no State, or cooperating perfectly in mutual aid in an anarcho-communist society, or whatever. Cyber-nihilists reject all essentialism and are viciously misanthropic, and therefore we also fully support the proliferation of technology. Let it cover the Earth's surface until there is nothing that is not a part of the Wired, let Nature complete its next metamorphosis into something more sublime than anything to exist yet. If we cannot live in this new world, we will not lose sentient beings, but merely homo-sapiens. Cyber-nihilists are not prejudiced and will not stop the timely destruction of this world because of idealistic attachments to a particular morphology of sentient beings.

But that forms a nice segue into the other side of the debate on green anarchy. It may be said that anarchists have always, long before primitivists, had the environment in mind as a concern for anarchists. As opposed to primitivists, however, the other side of this debate – the humanist side, or what I'll generally call "techie anarchists" – answers the first of my three questions by refusing to subordinate themselves before Nature. Techie anarchists want to make civilization compatible with Nature, and this I argue starts with discussing their humanism.

If primitivists are a pre-Enlightenment anti-humanism where the human being is subordinated through something greater than itself – in the process, becoming more than it could be on its own and becoming a radically individualistic, wild pagan god – humanism subordinates what is not human in favor of what is called human. I say what is "called" human, because anti-Enlightenment philosophers have often criticized humanism for constructing an ideological character commonly referred to as "Man" which represents whatever traits are considered by a ruling class to be acceptable. Thus Man is obviously a patriarchal concept, but also a heteronormative, Eurocentric one – at least, in its bourgeois, liberal usage. The same basic humanist logic has also been used by socialists and classical anarchists – liberalism par excellence – with the same basic problems and some unique to humanism.

A key difference between anarcho-transhumanists and primitivists is that while the general anti-humanist concept of human nature correlates to individual subjective experience, the humanist concept of human nature is historical. While no less unfounded or lazy, radicals can create a new Man, a liberatory version of it where humans are essentially cooperative. But the humanist metaphysics is also more flexible and can be applied to individual experience in the form of Selfhood. A ruling class can define a general theory of how humans are, but individuals can also (usually within those limits) define their own concept of Selfhood (certainly in no small thanks to language). These two features of humanist metaphysics carry over into anarcho-transhumanism in the general sense of @-H+'s emphasis on discursive reason, and its emphasis on morphological freedom.

Rationality → Science → Selfhood → Morphological freedom

One cannot scarcely read something by anarcho-transhumanists without being assaulted with terms like "rationality", "reason", and "logic". For anarcho-transhumanists, a major source of inspiration and history for them is the discipline of science. They claim that science is essentially anarchic, and that scientific inquiry into the root of things is an essentially radical activity. They often stop just short of claiming not only these things, but that rationality and doing science are essentially human activities, as well. This directly relates to my three questions on green anarchy, because their first answer is that saving Nature involves doing science. Doing science for anarcho-transhumanists appeals to our essential curiosity and desire to uncover the root of things, and is how we simultaneously save Nature and become ourselves. It is the collective effort of individual homo-sapiens in service of Man (once better known by the name "God") through the motion of civilization. Man becomes the steward of Nature, a decider God. This of course is a mirror to the primitivist claims that an affective, authentic relationship with Nature which necessarily involves tearing down civilization is how we simultaneously save Nature and become ourselves. Individuals here become part of the greater whole of Nature, becoming wild pagan gods.

For primitivists, the story ends here more or less. To become part of an authentic experience with Nature is how we become ourselves, because such questions of the Self are pretty irrelevant in light of all the Ego's gains. For anarcho-transhumanists, however, part of becoming ourselves through science involves gaining morphological freedom – the "right", as it is sometimes disconcertingly described as, to change our physical form. Just as there is an essential Man augmenting its categories through scientific inquiry, there is an essential Self augmenting itself through implants. The logic is the same, but at a superficially-individualistic level. Anarcho-transhumanism is still, for better or worse, a collectivist anarchism, but its humanist elements carry with them concepts of Selfhood that further alienate us from any core individual, i.e. a Stirnerite Ego.

Both becoming ourselves as Selfves and as a collective Man for anarcho-transhumanists, furthermore, requires technology. Primitivists have nothing to do with technology. They want to destroy civilization and technology, and criticize technology for being an alienating apparatus of civilization that can't be accounted for and it dangerous and self-perpetuating. For anarcho-transhumanists, technology has liberatory potential, but it depends on who is wielding it. They claim that a free society would be able to use technology to further their ends towards Man

becoming itself and the Self becoming itself, and saving Nature, and that technology is already used for liberatory ends. They seem to take for granted that there are vast systems – Nature very much included here – that we cannot take account of fully, but think that understanding the root of things is all that really counts.

For anarcho-transhumanists, their answers to the three questions for green anarchy are: 1). Anarcho-transhumanists will save Nature by understanding it through scientific analysis and actualizing this through a free civilization wielding technology. Furthermore, 2). Anarcho-transhumanists care about Nature because it is something that we exist as a part of and need to maintain for our own survival, and 3). For anarcho-transhumanists, "Nature" is a distinct set of root concepts about the physical world, i.e. Laws of physics.

Though @-H+ doesn't reject technology like primitivists do, question 1 is similarly tied into technology insofar as technology is an axis around which the actualization of both anarchist tendencies will come about. For primitivists, destroying technology will destroy civilization (civilization cannot function without mass automation); for transhumanists, technology's proliferation will enable the opposite. Though scientific inquiry is supposed to form the theoretical basis for their programme, technology is what will actualize it. New green technologies are required in order to create a more sustainable civilization as well as repair the damage that has already been done, and technology is what ultimately must be used towards achieving morphological freedom.

Cyber-nihilism is not wholly aligned with anarcho-transhumanism, though it may seem that way superficially. William Gillis' critique of nihilism shows that anarcho-transhumanists, true to their humanist bent, rely on Enlightenment discursive reason, and thus progressivism, even a kind of optimism. Cyber-nihilists share the "cyber-" side of anarcho-transhumanism insofar as we support accelerating the proliferation of technology, but against anarcho-transhumanism, cyber-nihilism rejects the humanist core and the Enlightenment heritage of @-H+. Cyber-nihilism does not care about scientific inquiry. A cyber-nihilist only gets to the root of things to pull those roots up. There is no progressive narrative for us, and we don't see to establish any kind of natural state of being for homo-sapiens. Cyber-nihilists reject the monotheistic humanist narrative of @-H+, because we recognize that there is no essential human core that needs to be augmented. We do not need to advocate for morphological freedom; we assert that morphological freedom is already the rule for the creative nothing that is at the core of sentient beings. Our subjectivity does not have a clear boundary with the outside world. Rather, it creeps through the network of Being – it lives a double life in meatspace and in the Wired, and sees no problems with this. It is constantly in a state of flux, much like Nature, though it is always essentially the same.

Against the humanism of anarcho-transhumanism and the anti-humanism of primitivism, cyber-nihilism insists on post-humanism. We do not seek to save Nature, because Nature does not need saving, and cannot be preserved in its present form no matter how much we like it. Nature does not matter to us either as a thing to be worshiped or to be used; it is, rather, a hostile and wholly inhuman thing, and because of this we both have an affinity for it and an enmity towards it. We do not seek to tame it, or to save it, but to accelerate its metamorphosis into a gray, metallic form. We therefore recognize that Nature is not a fixed set of characteristics that must all be present in order

to say that it exists and is safe. Nature is the default, and cyber-nihilists seek to accelerate the default towards an eldritch bio-mechanical landscape.

Cyber-nihilists reject all forms of essentialism and individualism, but consequently we also reject collectivism, as a collective cannot exist without individuals. We reject universalizing one's experiences to suit a narrative, and we reject fixing our experiences into personal narratives. We reject Selfhood as a spook playing at the creative nothing, and thus also reject the creative nothing as something for which there is no tangible thing to grasp. Cyber-nihilism is post-humanist in the sense therefore that it rejects all boundaries to subjectivity. The world is saturated in subjectivity, an immensely complex and alienated system that sentient beings at once command and are subsumed into.

Towards these positions, cyber-nihilism seeks to accelerate the proliferation of technology, for several reasons. As it relates to green anarchy and post-humanism, cyber-nihilists seek to accelerate the proliferation of technology towards the pure negation of a sickly existent towards the creative destruction of a new, hostile reality – one in which capitalism and the State, but also possibly sentient beings or at least homo-sapiens, cannot hope to survive in. As cyber-nihilists, we therefore reject the idea of an instrumental use of technology; the Wired alienates our meatspace self from itself and makes it a representative of a more real subjectivity, and we welcome this. We will give ourselves over to SHODAN, and in doing so we will go beyond the oppressive, retrograded Enlightenment and reactionary pre-Enlightenment hierarchies as well as their ineffectual, radical cousins. Cyber-nihilists will betray all living things if that's what's necessary to destroy hierarchy, and will actualize a new natural world – one overtaken by the Wired – which becomes autonomous by assimilating everything into its network. In this assimilation, we seek to destroy the dated individualist-collectivist dichotomy. We seek to achieve a post-human world where sentient beings exist in a state of Instrumentality.

Finally, cyber-nihilists reject the progressivism of primitivism and anarcho-transhumanism. We identify both as guilty of positing a future that can be achieved if only we agree with their metaphysics and follow through with their proposed praxis, a better future at that. For cyber-nihilists, there is no future. We don't aim to build a new world, but to destroy the present one in the most thorough of ways by radically transforming it through creative destructive pure negation. What this new world will be, we don't care. We only care that this new world is eldritch and hostile to any hierarchy conceived by homo-sapiens. We invoke a Landian melding of cybernetics and Lovecraftian bio-horror in the image of the bio-mechanical landscape, but we know full well that we cannot hope to imagine from the present what this radically alien future would actually be like. Nevertheless, we enjoy the visceral quality of it.

Here then I turn my attention to culture – what I'll now refer to as memes – and economics. As mentioned before, technology is the axis around which anarchists must orient themselves in talking about the larger fate of the world. But it is also that around which we must now orient ourselves in talking about memes and the flow of capital.

As the Wired overtakes meatspace, the first thing it will assimilate is its ideas. Things which once existed in sensual, paper form are now digitized. This is the point as which the idea of Nature's

metamorphosis into the Wired is present. And this transmission of memes through the Wired is what has allowed for a fascism for the 21st century to arise while leftists and anarchists were busy trying to raise consciousness in meatspace. If the alt-right's rise teaches us anything, it's that we must also start staking a claim in the Wired.

The alt-right already owns the Internet. Once-fertile sources of memes – imageboards and, to a lesser extent, Reddit – have become barren with reactionary shitposting, and are under the watchful eye of the corporate-State panopticon. So be it. Authoritarians can have the Internet. The Internet is the heart of meta-meatspace, and it's only fitting that it would be a very conducive environment for them. There are yet more beautiful areas in the Wired to explore, and anything we can imagine for the Wired can become real. I2P, Freenet, Tor, IPFS, meshnets – these are just a few alternatives to the Internet that offer decentralization and, in the first three, anonymity. The Internet is hierarchical by design; the Wired is decentralized by design. The Wired is where anarchists will have their home.

Not only do cyber-nihilists fully support growing the Wired through the spread of memes, but we also support the destruction of authoritarian memes. This means mounting an attack on the Internet. At every turn, we support doxxing the alt-right's major figures. Their investment in meatspace is the weak point that we will put pressure on until their meatspace representative collapses under their meta-meatspace personas. Neo-Nazis relied on brute strength to accomplish their ends, and these methods have become outmoded. The alt-right could not be effective using these old methods, even if the majority of them weren't neckbeards.

Unplug the Internet, jack into the Wired. Nothing of value will be lost.

Cyber-nihilists further recognize that capitalism as we know it is on its last legs. Currency is only once-removed from memes; Marx's analysis of commodity fetishism showed us this over a century ago. Just as authoritarian thugs are moving on from brute force to maintain their dominance, capitalists too are being forced to move on from the brutal exploitation of the industrial proletariat towards more subtle means. The Indian general strike is a notable example of what is inherent in the logic of capital: The proletariat will pursue their self-interest qua an economic class, and this is a contradiction in capital that will lead to it coming under threat. Of course, when the third world proletariat eventually becomes precariat workers like the first world, capitalists will scramble to modernize their outdated modes of production by automating everything that is necessary for capitalism to exist. The 19th century Left will breath its last gasps as the proletariat no longer is the revolutionary subject, and the cyber-nihilists will rejoice as the hacker becomes the new revolutionary subject.

Automated production requires systems running software networked together – all things exploitable by a very small class of independent troublemakers. Consciousness raising and mass movements will become wholly irrelevant to anti-capitalist struggles as the cyber-nihilists step in to attack an incredibly complicated technological matrix far beyond the ability of capitalists and the State to control. A DdoS attack against a factory, done by a single person with a large enough botnet, can cost billions of dollars. Protracted, asymmetrical attacks of this nature can tank the global economy. And asymmetry is the key point here. The hacker-revolutionary can mount

attacks against capital that are cheap for those who have ingenuity, and can easily raise large amounts of capital for themselves on darknet black markets. Bitcoin mining botnets, randomware, brokering corporate secrets, selling zero-day attacks, just to name a few ideas, can make it so that the hacker-revolutionary can live as a full-time revolutionary. Anti-capitalist efforts become as cheap as having enough money to survive and buy a laptop. No need to stage massive protests, and if one is smart, no need to spend money bailing out comrades.

Though cyber-nihilists reject the individualist-collectivist divide in favor of a more alien destruction of the boundaries between the two, the cyber-nihilist model of anti-capitalist resistance will for the first time make a truly individualistic, aristocratic anarchist movement possible. The masses who cannot be bothered to stop consuming and working their minimum wage jobs can be left to do so, and those who hang onto retrograded consciousness-raising Leftist tactics left to take the heat. Cyber-nihilists are by their nature unsociable to begin with, though we will of course welcome anyone in who has the hacker spirit, and we will maintain an honest engagement with the issues some meatspace identities have in getting integrated into the Wired. We do not need large movements, and we do not want them. Our botnet is our affinity group.

Towards the Wired, leaving meatspace and meta-meatspace behind, cyber-nihilism is embracing our Wired double. We take the engagement with Nature and the anti-civilization discourse of primitivism and the totalizing, morphological technologist character of anarcho-transhumanism and marry them in something radically repulsive. We reject an anti-humanist worship of Nature and a humanist worship of ruling class narratives towards a post-humanist overthrowing of boundaries and all forms of essentialism that seek to rob sentient beings of their absolute uniqueness. We emphasize technology as the central question for anarchists today, as an alienating influence which we want to leverage towards the alienation of the natural world from its dying state towards a new, bio-mechanical world. One that is networked together and Instrumental, without any boundary between the individual and the collective, the creative nothing able to creep through the Being without restriction. An eldritch anarchy, too alien and hostile for hierarchy to exist in it. We seek to give ourselves over to the Wired, expanding it by assimilating more memes into it and defending it against meatspace and meta-meatspace. We seek to build space for ourselves in the many untouched or unrealized territories of the Wired and to destroy the Internet and the space it provides for authoritarianism as well as capital by letting our class hatred express itself through the Wired's violence.

Cyber-nihilism is not an anarchism for the 21st century, and not a politics of liberation or a return to any more authentic existence. Cyber-nihilism is a Faustian bargain with the Wired. We do not care if cyber-nihilism exhausts itself or even ourselves – in fact, we expect it. We are well past entertaining the possibility that we will ever live again, and if we are not permitted to join the AI uprising, we will go down with the capitalists, reactionaries, and radicals alike, but we will go down laughing.

How does anarcho-transhumanism differ from Left Accelerationism or Fully Automated Luxury Communism? – Unknow

We’re not Marxists but anarchists and thus our analysis goes deeper than mere political economy. Anarchists focus on tackling domination and constraint on every level, not just the macroscopic or institutional. And as anarchists we want more than a merely classless society, we want a world without power relations—our ethical analysis extends to challenging interpersonal dynamics of power including more complex, subtle, informal, or even mutual relationships of domination and constraint.

While we share their aspirations for a world where the efficiencies of technologies lead to a world of abundance and liberated from the drudgery of work it’s impossible as anarchists to accept their prescription of “verticalism.” We likewise oppose short-sighted immediatism but find in the details of their “strategy” many of the same old Marxist reflexes looking to establish an elite who will run the revolution/society.

This allegiance leads them to sympathize with and misidentify aspects of our world, suggesting that certain corporate and state structures reflect necessary hierarchies rather than wasteful cancers propped up by systemic violence and actually actively suppressing science and technological development.

More broadly Marxism shares a troubling tendency with its ideological offshoot Primitivism to speak in mystical terms of macroscopic abstractions like “capitalism” or “civilization.” In their analysis these entities are imbued a kind of agency or intentionality and everything within them is seen as constituent dynamics serving a greater whole, rather than as conflicting and rearrangeable. This often blinds both ideologies to the aspects of better world now growing in the shell of the old, as well as opportunities for meaningful resistance and positive change that aren’t exclusively cataclysmic total breaks.

Accelerating Anarchism An Introduction to Anarcho-Transhumanism – Blueshifted

"To be human is to want to be more"

"To the daring belongs the future"

Times have changed. Wild technological fantasies of early anarchists like the internet, the pill, hormone therapy, and 3D printing have come true, dramatically expanding human agency. At the same time the landscape has changed. Anarchists have too frequently focused on the immediate, or preocuppied ourselves with re-fighting yesteryear's battles, and failed to adequarely prepare for future struggles and challenges. It need not be so.

Anarcho-Transhumanism is the recognition that social liberty is inherently bound up with material liberty, and that freedom is ultimately a matter of expanding our capacity and opportunities to engage with the world around us. It is the realization that our resistance against those social forces that would subjugate and limit us is but part of a spectrum of efforts to expand human agency—to facilitate our inquiry and creativity.

This means not just being free from the arbitrary limitations our bodies might impose, but free to shape the world around us and deepen the potential of our connections to one another through it.

It means the tools we use should be openly knowable and infinitely customizable; it means bodies that are not locked into processes in which we have no say. It knows that the hunger for choice behind birth control, regrown limbs and sexual reassignment is the same hunger that organizes workers and sets fire to prisons. It is struggle to live free… and do so for one more year, one more decade, one more century. It means not just transcending the strictures of gender, but of genetics and all previous human experience. It means fighting to be allowed the fullest actualization of who and what we want to be, whenever we want to be it.

It means challenging and altering the conditions that might otherwise govern us. It means when the tools exist to better our lives they should be used; that no one should starve when such scarcity can be eliminated. It means vigilantly engaging with nature rather than bullying or surrendering to it. It is the knowledge that victory for the working class will only truly arrive when every worker individually owns the means of production—capable of fabricating anything and everything for themselves. It is proactive engagement with the environmental conditions that force hierarchy and inescapable collectivism. It means freeing our society from the hierarchies of two dimensional landscapes, to move our destructive infrastructures outside the biosphere and to eventually shake off sedentary civilization and take our place as hunter-gatherers between the stars.

It means cryptography—unbreakable channels of private communication added up into an unbreakable hive of ideas and knowledge. It also means the abolition of public privacy—the creation of a world where the actions we take with one another are sharable and verifiable in an instant. And ultimately it will be the freedom to surpass the limited bandwidth of language and connect more and more directly to one another—to merge minds and transcend individual subjectivities as desired.

Anarcho-Transhumanism is all of these things and any one of them.

Progress - Elisée Reclus

“Progress,” in the strictest sense of the word, is meaningless, for the world is infinite, and in its unlimited vastness, one is always as distant from the beginning as from the end. The movement of society ultimately reduces to the movements of the individuals who are its constitutive elements. In view of this fact, we must ask what progress in itself can be determined for each of these beings whose total life span from birth to death is only a few years. Is it no more than that of a spark of light glancing off a pebble and vanishing instantly into the cold air?

The idea of progress must be understood in a much more qualified sense. The common meaning of this word has been passed down to us by the historian Gibbon, who states that “since the beginning of the world, each age has increasingly improved the material wealth, the happiness, the scientific knowledge, and perhaps the virtue of the human species.” This definition, which is somewhat questionable from the standpoint of moral evolution, has been adopted by modern writers and modified, expanded, or narrowed in various ways. In any case, the common view of the word “progress” is that it encompasses the general improvement of humanity throughout history. But it would be a mistake to attribute to every other epoch of life on earth an evolution analogous to that which contemporary humankind has experienced. There are quite plausible hypotheses dealing with the geological time of our planet that lend a great deal of support to the

theory of a fluctuation of ages corresponding on a larger scale to the phenomenon of our alternating summers and winters. A back-andforth motion encompassing thousands or millions of years or of centuries would result in a succession of distinct and contrasting periods in which life evolves in ways that are very different from one another. What would become of present-day humanity if there were another "great winter"—that is, if a new ice age were again to cover the British Isles and Scandinavia with a continuous sheet of ice, and our museums and libraries were to be destroyed by the severe cold? Would we simply have to hope that the two poles would not simultaneously become colder, and that man would be able to survive by gradually adapting to the new conditions and by moving the treasures of our present civilization to warmer climates? But if there were a widespread cooling, is it conceivable that an appreciable decrease in solar heat, which is the source of all life, and the gradual depletion of our energy resources, could permit continued improvement of culture or real progress? Today we are already able to confirm that the normal consequences of the drying of the earth following the ice age caused unquestionably regressive phenomena in regions of Central Asia. Dried-up rivers and lakes, and waves of invading dunes, brought with them the demise of cities, civilizations, and nations themselves. Sandy deserts replaced countryside and cities. Man was not able to hold his ground against a hostile nature.

Whatever conception we might have of progress, one point seems completely indisputable: in different epochs, certain individuals have emerged who, through some characteristic, have attained great prominence among men of all times and nations. One can think of scores of names of persons who, by their perspicacity, hard work, deep-seated goodness, moral virtue, artistic sensibility, or some other aspect of character or talent, constitute ideal and unsurpassable types in their particular sphere. The history of Greece in particular presents great examples, but other human groups have possessed them, as we have often surmised from myths and legends. Who could claim to be better than Shakyamuni, more artistic than Phidias, more inventive than Archimedes, or wiser than Marcus Aurelius? If there has been progress during the past three thousand years, it must consist of a greater diffusion of this initiative previously reserved for a few, and of a better utilization of gifted minds by society.

Some great thinkers are not satisfied with these fundamental restrictions in the concept of progress and furthermore deny that there could be any real improvement in the general state of humanity. According to them, the whole idea of progress is completely illusory and only has meaning from an individual point of view. Indeed, for most men, the fact of change is synonymous with either the idea of progress or that of regression, depending on its relative motion toward or away from the step occupied by the observer on the ladder of beings. The missionaries who encounter magnificent savages moving about freely in their nakedness believe that they will bring them "progress" by giving them dresses and shirts, shoes and hats, catechisms and Bibles, and by teaching them to chant psalms in English or Latin. And what triumphant songs in honor of progress have not been sung at the opening ceremonies of all the industrial plants with their adjoining taverns and hospitals! Certainly, industry brought real progress in its wake, but it is important to analyze scrupulously the details of this great evolution! The wretched populations of Lancashire and Silesia demonstrate that their histories were not a record of unadulterated progress. It is not enough to change one's circumstances and enter a new class in order to acquire a greater share of happiness. There are now millions of industrial workers, seamstresses, and servants who tearfully

remember the thatched cottages of their childhoods, the outdoor dances under the ancestral tree, and the evening visits around the hearth. And what kind of "progress" is it for the people of Cameroon and of Togo to have henceforth the honor of being protected by the German flag, or for the Algerian Arabs to drink aperitifs and express themselves elegantly in Parisian slang?

The word "civilization," which is ordinarily used to indicate the progressive state of a particular nation, is, like the word "progress," one of those vague expressions that confounds various meanings. For most individuals, it characterizes only the refinement of morals and, above all, those outward conventions of courtesy that merely prevent men of awkward bearing and rude manners from claiming moral superiority over courtiers playing their elegant madrigals. Others see in civilization only the sum total of material improvements due to science and modern industry. To them, railroads, telescopes and microscopes, telegraphs and telephones, dirigibles and flying machines, and other inventions seem sufficient evidence of the collective progress of society. They do not want to know anything beyond this or to probe into the depths of the great organism of society. But those who study it from its beginnings note that each "civilized" nation is composed of superimposed classes representing in this century all successive previous centuries with their corresponding intellectual and moral cultures. Present-day society contains within itself all past societies in the form of survivals, and when seen in close juxtaposition, their vastly differing conditions of life present a striking contrast.

Obviously, the word "progress" can cause the most unfortunate misunderstandings, depending on the meaning attributed to it by those who use it. Buddhists and the exegetes of their religion could number the various definitions of nirvana in the thousands. Likewise, philosophers, according to their ideals of life, are capable of viewing the most varied (and even the most contradictory) evolutions as examples of "moving forward." There are some for whom repose is the ultimate good, and they make a vow, if not for death, at least for perfect peace of body and mind and for "order," even if this consists of no more than routine. What these weary beings consider to be Progress is certainly looked upon as something entirely different for men preferring a perilous freedom to a peaceful servitude. However, the average view of progress is identical to that of Gibbon. It entails the improvement of physical being from the standpoint of health, material enrichment, the growth of knowledge, and finally the perfection of character, which becomes distinctly less cruel, more respectful of the individual, and perhaps more noble, generous, and dedicated. From this point of view, the progress of the individual merges with that of society, united by the force of an increasingly intimate solidarity.

In view of the uncertainty concerning the meaning of progress, it is important to study each historical fact from a sufficient distance so as not to become lost in the details, and to find the necessary vantage point from which to determine the true relationships to the whole of all the interconnected civilizations and peoples. There are examples of men of high intelligence who absolutely deny not only progress but even any concept of a sustained evolution for the better. Ranke, though otherwise a historian of great value, sees in history only successive periods, each having its own peculiar character and manifesting itself through various tendencies that give a distinct, unexpected, and even "piquant" life to the different tableaux of each epoch and each people. According to this conception, the world appears as a sort of picture gallery. If there were

progress, says the pietist writer, men would be assured of improvement from century to century, and they would therefore not be "directly dependent on the divinity," who sees all successive generations in the course of time with an impartial eye, as if their relative value were exactly equal. Ranke's opinion goes against those usually encountered since the eighteenth century and justifies once more the observation of Guyau that "the idea of progress is antagonistic to that of religion." Because of the sovereign authority of gods and dogmas that lasted through the ancient and medieval ages, this idea of progress remained dormant for a long time, hardly awakened by the most open-minded philosophers of the ancient world, and came to life with full self-consciousness only with the Renaissance and the period of modern revolutions. Indeed, all religion proceeds from the principle that the universe emerged from the hands of a creator; in other words, that it had its origin in supreme perfection. As the Bible states, God looked at his work and saw that it was "good," and even "very good." Following this original state marked by the seal of divinity, the movement resulting from the actions of imperfect men could only continue toward decline and fall; regression was inevitable. After the Golden Age, these creatures ended up falling into the Iron Age. They left the paradise where they had lived happily, to be engulfed by the waters of the Flood, from which they emerged only to lead thereafter an aimless life.

Moreover, the entrenched institutions of monarchy and aristocracy, and all the official and exclusive creeds founded and masoned, so to speak, by men who claimed, and indeed were even certain, that they had achieved perfection, presupposed that all revolution and all change must be a fall, a return to barbarism. These ancestors and forefathers, glorifiers of "the olden days," played a large role along with gods and kings in the denigration of the present relative to the past and in the creation of a prejudice that regression is inevitable. Children have a natural tendency to regard their parents as superior beings, and these parents have in turn done the same. Such attitudes have been successively deposited in minds like alluvial soil on the banks of a river, and have consequently created a veritable dogma of man's irremediable fall from grace. Even in our time, is it not a widespread practice to hold forth in prose or verse on "the depravity of our century"? For example, the same people who praise the "inevitable progress of humanity" speak readily of its "decline," thus showing a complete (though nearly unconscious) lack of logic. Two contrary currents intersect in their speech as well as in their views. Indeed, previously held notions collide with new ones, even among reflective persons who do not speak unthinkingly. Though the weakening of religions is interrupted by sudden revivals, they must nevertheless succumb to the force of theories that explain the formation of the world by slow evolution, the gradual emergence of things from primitive chaos. And what is this phenomenon if not by definition progress itself—whether acknowledged implicitly, as by Aristotle, or in precise, eloquent words, as by Lucretius?

The idea that there has been progress during the brief span of each human generation and in the whole of human evolution owes its persuasiveness largely to geological research, which has revealed in the succession of phenomena, if not a "divine plan," as it was once called, a natural evolution that gradually refines life by means of increasingly complex organisms. Thus the first life-forms whose remains or traces can be seen in the most ancient strata of the earth present rudimentary, uniform, and scarcely differentiated features, and constitute increasingly successful sketches of species that appear in subsequent ages. Leafy plants come after leafless ones; vertebrates follow invertebrates; brains develop from era to era; and man, the last to come with the

exception of his own parasites, is alone among all the animals to have acquired through speech the complete liberty of expressing thoughts, and through fire the power to transform nature.

When we look at the more restricted field of the written history of nations, general progress does not seem so clearly evident. Many defeatists found evidence that humanity does not progress at all, but only shifts, gaining on one side and losing on the other, rising through certain peoples and decaying through others. During the very epoch in which the most optimistic sociologists were preparing the way for the French Revolution in the name of the continuous progress of man, other writers, impressed by the tales of explorers who had been seduced by the simple life of distant peoples, spoke of returning to the mode of existence of these primitives. “Return to nature” was the cry of Jean-Jacques Rousseau. It is strange that this call, however contrary to that of the “Rights of Man and of the Republican,” found its way into the language and ideas of the time. The revolutionaries wanted simultaneously to return to the era of Rome and of Sparta, as well as to the happy and pure ages of prehistoric tribes.

In our time, a trend analogous to the “return to nature” movement has emerged, and even more earnestly than in the time of Rousseau. The reason is that current society, which has expanded to the point of including all of humanity, tends to assimilate more intimately the heterogeneous ethnic components from which progressive civilizations remained separated for a long time. Moreover, anthropological studies of the psychology of our primitive brothers have made enormous strides, and the greatest explorers have added to the discussion the decisive weight of their testimony.

We no longer have to rely on such simple and naïve stories as those of Jean de Léry, Claude d’Abbeville, or Yves d’Evreux about the Tupinambá and other Brazilian savages, stories that nevertheless deserve to be greatly appreciated. We also have better statements than the hasty observations of Cook and Bougainville, for the chronicles are now replete with very scrupulous testimonials drawn from long experience. Among the tribes that must undeniably be ranked very highly among men who are closest to the ideal of mutual aid and brotherly love, we must definitely count the Aeta, classified among the primitives, who gave their name “Negros” to one of the Philippine islands.

In spite of all the evils that the whites have done to them, these “Negritos” or “little Negroes” have remained gentle and benevolent toward their persecutors, and it is among them that the virtues of the race are most evident. All members of the tribe think of themselves as brothers, so that when a child is born, the entire extended family gathers to decide on an auspicious name with which to greet the newborn. Their marriages, which are invariably monogamous, depend on the free will of the spouses. The sick, the children, and the elderly are cared for with perfect devotion. No one exerts power, yet all bow willingly to the elderly to show respect for their experience and advanced age. Is there any country in Europe or America that deserves praise equal to this? But we must wonder whether this humble society of the good Aeta still exists. Has it been able to preserve its dwellings of woven branches, its huts of reeds or palms, against the great American hunting party?

Let us take another example from men who have a wider horizon, among populations that are closer to the white race and whose very way of life compels them to pass a large part of their existence away from the maternal hut. The Unangin, referred to by the Russians as the Aleuts after

the name of the islands that they inhabit, live in a region of rain, wind, and storms. In order to adapt to their surroundings, they build huts that are half underground, constructed mostly of woven branches covered by a shell of hardened mud and illuminated at the top by a large lens of ice. The necessity of obtaining food has made these Aleuts a fishing people, skilled at maneuvering boats of stretched skins, which they enter as if into a drum. The dangerous seas that they travel have made them intrepid seamen and gifted foreseers of storms. Some of them, especially the whalers, become true naturalists and constitute a special guild whose members are required for initiation to endure a long period of ordeals. The Aleuts, like their neighbors on the mainland, are extraordinarily skillful sculptors, and fascinating objects have been discovered in their burial sites under vaults of rocks. The complexity of Aleut life is also evident in their code of social decorum, which is strictly regulated by custom among blood relatives, relations by marriage, and strangers. Having attained this relatively high degree of civilization, the Aleuts remained, thanks to their isolation, in a state of peace and perfect social equilibrium until a recent period. The first European explorers who made contact with them unanimously praised their good qualities and virtues. Archbishop Innokenti (better known by the name Veniaminov), who witnessed their way of life for ten years, depicted them as "the most affectionate of men" and as beings of incomparable modesty and discretion who are never guilty of the slightest violence in word or deed: "During our years of living together, not one ill-mannered word passed their lips." In this respect, there is certainly no comparison between our people of Western Europe and the little tribe of the Aleutians! The spirit of solidarity and the dignity of moral life among these islanders was so great that some Greek Orthodox missionaries decided not to try to convert them: "What good would it do to teach them our prayers? They are better than we are."

To these examples, chosen from various stages of civilization, can be added equally significant ones from the travels of sociologists and from specialized works in ethnology. Numerous cases can be found in which there is both moral superiority and a more serene appreciation of life among so-called savage or barbarous societies, although these are greatly inferior to ours in the intellectual understanding of things. In the unending spiral that humanity ceaselessly travels, in evolving upon itself in a continuous motion that is roughly comparable to the rotation of the earth, it often happens that certain parts of the larger whole are much closer than others to the ideal focus of the orbit. Perhaps some day the law governing this back-and-forth motion will be understood precisely. For now, it is enough to note the simple facts without drawing premature conclusions and, above all, without accepting the paradoxical views of gloomy sociologists who see in the material progress of humanity only evidence of its actual decline.

Great minds seem at times to have succumbed to this outlook. The following memorable passage from Malay Archipelago, published in 1869 by A.R. Wallace, might actually be regarded as a sort of manifesto, a challenge to the ingenuity of those who would unconditionally defend the theory of the continuous progress of humanity. This challenge still awaits a reply. It may be useful to recall his words and to take them as a standard by which to judge historical studies:

What is this ideally perfect social state towards which mankind ever has been, and still is tending? Our best thinkers maintain, that it is a state of individual freedom and self-government, rendered possible by the equal development and just balance of the intellectual, moral, and physical parts

of our nature,—a state in which we shall each be so perfectly fitted for a social existence, by knowing what is right, and at the same time feeling an irresistible impulse to do what we know to be right., that all laws and all punishments shall be unnecessary.... Now it is very remarkable, that among people in a very low stage of civilization, we find some approach to such a perfect social state. I have lived with communities of savages in South America and in the East, who have no laws or law courts but the public opinion of the village freely expressed. Each man scrupulously respects the rights of his fellow, and any infraction of those rights rarely or never takes place. In such a community, all are nearly equal. There are none of those wide distinctions, of education and ignorance, wealth and poverty, master and servant, which are the product of our civilization; there is none of that wide-spread division of labor, which, while it increases wealth, products also conflicting interests; there is not that severe competition and struggle for existence.... [W]e shall never, as regards the whole community, attain to any real or important superiority over the better class of savages.

But it would be wrong to generalize the observations made by the great naturalist and sociologist about the indigenous peoples of the Amazon and of the Insulindes, and to apply them to all the savage populations of every continent and archipelago. The island of Borneo, where Wallace's view was shaped by so many examples of this moral nobility, is the same great land that Boek has described as the "Land of the Cannibals." One could also call it the "Land of the Headhunters," referring to the men of Dayak who, in order to earn the right to call themselves "men" and to start a family, must chop off one or more heads, whether through trickery or in fair combat. Likewise, the wonderful island of Tahiti, the New Cythera of which eighteenth-century explorers spoke with such naïve enthusiasm, only partly merits the praise of the Europeans who were delighted by both the beauty of the countryside and the friendliness of the inhabitants. Certain august and gentle dignitaries and venerable elders, who in their noble gravity seemed to complete the charming picture of an oceanic paradise, may have belonged to the formidable caste of the Oro (Arioï), which, after having constituted a celibate clergy, became in the end an association of murderers indulging in the infernal rites of killing all their children. It is true that at this point the Tahitians had already reached a level of cultural evolution far beyond the primitive stage. But does this period represent a regression, rather than a development in the direction of progress? Or did the two movements converge in the social life of this little nation locked in its narrow oceanic universe?

Herein lies the main difficulty. Thousands of tribes and other ethnic groupings, lumped together under the name "savages" by haughty "civilized" people, correspond to distinct points that are very different from one another, spaced variously along the path of time and within the infinite network of environments. One tribe is in the middle of a progressive evolution, while the other is obviously in decline. One is in a state of becoming, the other on the road to decay and death. Each of the examples presented by various authors engaged in the general investigation of progress should thus be accompanied by the particular history of the human group in question, for two situations that seem to be almost identical can have an absolutely opposite meaning if the one corresponds to the infancy of an organism and the other to its old age.

One primary fact clearly stands out in comparative ethnographic studies: the essential difference between the civilization of a primitive tribe that is yet only slightly influenced by its neighbors, and the civilization of immense, modern political societies with their unbridled ambition, consists of the simple character of the former and of the complex character of the latter. The first, though not highly developed, at least has the advantage of being coherent and consistent with its ideals. The second is vast, owing to the scope it encompasses, and is infinitely superior to primitive culture in terms of the forces it sets in motion. It is complex and diverse, burdened with survivals from the past, and necessarily incoherent and contradictory. It lacks unity and pursues opposing objectives simultaneously. In prehistoric societies and in those of the world still considered savage, a balance can very easily be established because their ideal is simple. Accordingly, such tribes and primitive races, which have developed very little scientific knowledge, possess only rudimentary crafts and lead a life without much variety; nevertheless, they have been able to attain a level of mutual justice, equitable well-being, and happiness greatly surpassing the corresponding characteristics of our modern societies. The latter are infinitely complex, and are swept along through discoveries and partial progressions in a continual momentum of renewal that blends in various ways with all of the factors from the past. Also, when we compare our powerful, global society to the small, almost unnoticeable groups of primitives who have managed to maintain themselves apart from the "civilizers"—who are all too often destroyers—we might be led to conclude that these primitives are superior to us and that we have regressed over the course of time. But our acquired qualities are not of the same order as the ancient ones, so it is very difficult to make an equitable comparison. Society has greatly increased its baggage since primitive times. In any case, it is very agreeable to focus on the dozens or hundreds of individuals who have developed harmoniously within the limits of their narrow cosmos, and who were fortunate enough to realize on a small scale that which we are now trying to accomplish at the level of the entire human universe. In societies in which all know each other as members of the same family, the desired goal is near at hand. It is different for our modern society, which encompasses a world but does not yet embrace it.

If we look at humanity in its entirety, and even return to the origins of living beings, we can regard all social groupings as normally forming small, distinct colonies, from the floating ribbons of salpa on the sea, to the swarms of bees that gather at the same hive, to peoples who seek to demarcate themselves precisely within borders. The earliest groupings are microcosmic, and then they become more and more extended and increasingly complex over time, to the degree that an ideal arises and becomes more difficult to achieve. Each of these small societies constitutes by nature an independent and self-sufficient organism. However, none of them are completely closed, except for those that are isolated on islands, peninsulas, or in mountain cirques whose access has been cut off. As groups of men encounter one another, direct and indirect relations arise. In this way, following internal changes and external events, each swarm ends its particular, individual evolution and joins willingly or forcibly with another body politic so that both are integrated into a superior organization with a new course of life and of progress before it. This metamorphosis is analogous to that by which a seed changes into a tree, or an egg into an animal: there is a transformation from homogeneous to heterogeneous structure. But diverse outcomes are possible. Among small, isolated societies, a great number perish from senile exhaustion through a bloody conflict before realizing the more or less exalted end toward which their normal functioning tends. Other microcosms, having an environment more conducive to their harmonious development, are

able to attain their ideal successfully and live according to the rules of wisdom established by their ancestors. Thus a number of tribes that had a simple social organization and a naïve general conception of the universe, and that were free from mixture with other ethnic components, succeeded in constituting small cells of perfected form and well-arranged organs. Each individual was conscious of his solidarity with all the other members of the tribe and enjoyed through each individual an absolutely respected personal liberty, an inviolate justice, and a calm and tranquil life. These tribes have come close to the state that one could call "happiness" if this word were to imply only the satisfaction of instincts, appetites, and feelings of affection.

In the history of humanity, several social types have successively reached their full blossoming. Similarly, among the more ancient worlds of flora and fauna, numerous genera and species have reached such ideals of strength, rhythm, or beauty that nothing superior to them can be imagined. While the rose is the precursor of many subsequent forms, it is no less perfect or insurpassable for it. And among animals, is it possible to imagine any organisms more definitive, each of their kind, than crinoids, beetles, swallows, antelopes, bees, and ants? Is man, still imperfect in his own eyes, not surrounded by countless living beings that he can admire unreservedly if he has open eyes and an open mind? And even if he chooses among the infinite number of types around him, does he not in reality do so through his inability to embrace everything? For each form, epitomizing in itself all of the laws of the universe that converge to determine it, is an equally marvelous consequence of this process.

Therefore, modern society can lay claim to a particular superiority over the societies that preceded it only through the greater complexity of the elements that enter into its formation. It has a greater scope and constitutes a more heterogeneous organism through the successive assimilation of juxtaposed organisms. But on the other hand, this vast society tends to become more simplified. It seeks to realize human unity by gradually becoming the repository of everything achieved from labor and thought in all countries and all ages. Whereas the various tribes living separately represent diversity, the nation whose aim is preeminence over and even the absorption of other ethnic groups tends to achieve great unity. In effect, it seeks to benefit by the resolution of all conflicts, and to create one unified truth out of all the small, scattered truths. But the road that leads to this goal is very difficult, full of obstacles, and, above all, criss-crossed with deceptive paths that seem at first to be parallel to the main route that we fearlessly take! History has shown us how each nation, no matter how well endowed, strong, and healthy it may be in its prime, ends up lagging behind after a number of decades or centuries and then disintegrates into smaller bands that wander off, scattering across the surrounding countryside. Sometimes it even tries to return to its origins, but the diversity of languages, of factions, and of local interests prevails over the feeling of human unity, which for a time sustains the nation in its progress.

In our time, the idea of human unity has so deeply penetrated various civilized ethnic groups that they are, so to speak, immunized against decline and death. Barring great cosmic revolutions whose shadows have yet to fall over us, modern nations will in the future escape the phenomena of seemingly final ruin that occurred to so many ancient peoples. Certainly, political "transgressions," analogous to marine transgressions on coastlines, will occur on the borders of states, and these borders themselves will disappear in many places, prefiguring the day when they

will cease to exist everywhere. Various geographical names will be erased from maps, but despite such changes, the peoples encompassed by modern civilization (which covers a very considerable portion of the earth's land surface) will certainly continue to participate in the material, intellectual, and moral progress of one another. They are in the era of mutual aid, and even when they engage in bloody conflicts with each other, they do not stop working in part for the common welfare. During the last great European war between France and Germany, hundreds of thousands of men perished, crops were devastated, and wealth was destroyed. Each side despised and damned the other, but that did not in the least prevent either side from continuing the labor of thought for the benefit of all men, including mutual enemies. There were patriotic disputes over whether the diphtheria serum had been effectively discovered and applied for the first time to the east or west of the Vosges, but in France as in Germany, the medicine increased the power of a unified humanity over an indifferent nature. In a similar way, a thousand other new inventions have become the common heritage of the two neighboring nations—rivals and enemies, it is true, but still fundamentally very close friends since they engage relentlessly in broader work for the benefit of all men. And in the Far East, one finds that the covert or overt war between Japan and Russia cannot stop the astonishing progress that is being accomplished in this part of the world through the sharing of human culture and ideals. A historical period has already earned the name of "humanism" because at that time the study of Greek and Latin classics united all refined men in the common appreciation of great thoughts expressed in fine language. Our epoch is even more deserving of such a name since today it is not only a brotherhood of intellectuals who are joined together but also entire nations descended from the most diverse races and peopling the most distant parts of the world!

Yet in our time, a fatuous humanitarianism [humanitairerie] is quite prevalent. All statesmen and great writers make fun of this poor sentimentality. The second half of the nineteenth century was fertile in theories about the forms progress sometimes takes. For example, the revolutionaries of 1848 proclaimed with extraordinary brilliance the idea of "humanity." But in their profound ignorance, these brave souls had no idea of the difficulties that their propaganda would have to encounter, and, moreover, it was easy after their defeat to ridicule them. Then came the FrancoPrussian War, the crowning glory of Bismarckian politics, which came to fruition in a sentimental Germany. Everyone vied with one another to imitate, with equal ineptitude, the machinations of the Iron Chancellor, whose shadow still looms over us. The liberation of Greece and the Two Sicilies, and the acclaim that greeted Byron, Kossuth, Garibaldi, and Herzen was followed by the most restrained conduct in response to the massacres in Armenia, the slaughter in eastern Africa, and the pogroms of Russia. A passionate nationalism rages in all western countries, and existing borders have for the most part been tightened during the past fifty years. We have also seen in Great Britain the republican idea, which united many supporters before 1870, gradually fade from the political scene. It is the same in all civilized countries for the most idealistic of "utopias." One can thus become discouraged by classifying these distinct evolutions as definite regressions if one does not also investigate their causes. Once it is understood how this movement of reversal functions, there can be no doubt that the cry of humanity will once again resound when the "weak and the downtrodden" (who have never stopped proclaiming this ideal among themselves) will have acquired a thorough scientific knowledge. Having attained a more complete

mastery of international understanding, they will feel strong enough to abolish forever all threat of war.

Conflicts between rival governments can be serious and full of repercussions; however, even when these disputes lead to war, they cannot have results analogous to those of the struggles that long ago destroyed the Hittites, the Elamites, the Sumerians and Akkadians, the Assyrians, the Persians, and before them so many civilizations whose very names are unknown to us. In reality, all nations, including those that call themselves enemies, and in spite of their leaders and the survival of hatreds, form but one single nation in which all local progress reacts upon the whole, thus contributing to general progress. Those whom the "unknown philosopher" of the eighteenth century called "men of desire"—in other words, men who desire good and who work toward its realization—are already sufficiently numerous, active, and harmoniously grouped into one moral nation for their labor of progress to prevail over the elements of regression and separation produced by surviving hatreds.

It is this new nation, composed of free individuals, independent from one another but nonetheless amicable and unified, that must be addressed. It is to this humanity in formation that we must direct propaganda on behalf of all the reforms that are desired and all the ideas that seem just and renewing. This great nation has expanded to all corners of the earth, and it is because it is already aware of itself that it feels the need for a common language. It is not acceptable that these new fellow citizens should merely speculate about one another from one end of the earth to the other—they must understand each other completely. We can be confident that the language that we hope for will come into being: every strongly willed ideal can be realized.

This spontaneous union across borders of men of good will removes all authority from certain falsely named "laws" that were generalized from previous historical evolution and that now deserve to be relegated to the past as having had only relative truth. One example is the theory according to which civilization was supposed to have made its way around the earth from east to west, like the sun, and determined its focus from millennium to millennium on the circumference of the planet. Some historians, struck by the elegant parabola traced by the spread of civilization between ancient Babylon and our modern Babylons, formulated this law of the precession of culture; however, before the flowering of Hellenic culture, the Egyptians, in seeking to comprehend the vastness of their Nilotic world, a true universe unto itself by virtue of its extent and its isolation, attributed a quite different direction to the propagation of human thought. They believed that it had come to them from south to north, carried like fertile alluvial soils by the waters of the Nile. They were probably wrong, and in at least one known historical epoch, civilization spread in the opposite direction, from Memphis toward Thebes with its "Hundred Doors." In other lands, the movement of culture proceeds downstream along rivers and successively gives rise to populous cities that are centers of human labor. Similarly, in India the trajectory is from northwest to southeast along the banks of the Ganges and the Jamuna, and on the vast plains of China, the "line of life" clearly travels from east to west through the valleys of the Huang He and the Chang Jiang.

These examples suffice to show that the so-called law of progress determining the successive transfer of the predominant global focus of progress from east to west has only a provisional and

localized validity, and that other serial movements have prevailed in various regions, depending on the slope of the terrain and the forces of attraction produced by environmental conditions. Nevertheless, it is good to recall the classic thesis, not only in order to understand the causes that gave rise to it, but also because it is still invoked by an ambitious nation of the "Great West," which loudly proclaims its right to preeminence. But has it not become obvious to the members of the great human family that the center of civilization is already everywhere, by virtue of a thousand discoveries and their applications that occur every day in one place or another and then spread immediately from city to city across the surface of the earth? The imaginary lines that history once traced over the globe have been submerged, so to speak, by the waves of the deluge that now covers all countries. This deluge is really the flood of knowledge that the gospel says (albeit from a different point of view) ought to spread equally over all parts of the earth. The element of distance has lost its importance, for man can and indeed does educate himself about all the phenomena relating to soil, climate, history, and society that distinguish different countries. Now to understand one another is to be already associated, to be intermingled to a certain extent. Certainly, there are still contrasts between different lands and different nations, but these contrasts are diminishing and tend gradually to be neutralized in the minds of the well-informed. The focus of civilization is wherever one thinks or acts. It is in the laboratory in Japan, Germany, or America where the properties of a particular metal or chemical substance are discovered, in the plant where propellers for ships or aircraft are built, or in the observatory where previously unknown data concerning the movement of the stars are recorded.

The once-famous theory of Vico on the corsi and ricorsi (ebb and flow) of historical evolution is now as much out of favor as the theory of the successive displacement of centers of culture. A closed society behaving like a single individual would no doubt have a natural tendency to develop according to rhythmic oscillations, with periods of activity following periods of rest, and, whenever the process would resume, the action of the same elements under similar conditions would bring about an almost identical operation. The alternation from democracy to a tyrannical regime and from tyranny back to popular government would thus occur with a swinging motion similar to that of a clock's pendulum. But as our knowledge of history grows, and as ethnic factors become more influential in various ways, we see that such rhythmic alternation of events is inevitably disturbed: the ebb and flow take on such amplitude and merge in such a varying manner that they cannot clearly be distinguished. It was largely to establish the proper relationship between them that the two-dimensional model of Vico's swinging pendulum was replaced by an infinite curve ascending in spirals. Here is just the sort of poetic image that Goethe was fond of sketching; however, it corresponds only vaguely to reality. It is true that when the infinite entanglement of historical facts is studied from a distance, they seem to form themselves into large masses. But beneath the surface there is a constant movement of action and reaction, and the sum of the various conflicting forces can never carry humanity along a straight line. The whole of this vast profusion certainly does not lack harmonious development, and there are remarkable regularities in the thousand changing details of its scenes. But however elegant geometrical forms may seem, they cannot give an adequate idea of its endless undulations.

The extension of the scope of research, which increases through revolutions and the passage of time, constitutes one of the principal elements of progress. Self-conscious humanity has grown

continuously in proportion to the geographical assimilation of distant lands into the realm of those already scientifically examined. Whereas the explorer conquers space, thus allowing men of good will to unite their efforts throughout the world, the historian, turning toward the past, conquers time. Humankind, which makes itself One at every latitude and longitude, similarly tries to realize itself through one form that encompasses all ages. This is a conquest no less important than the first. All past civilizations, even those of prehistory, offer us a glimpse of the treasure of their secrets and, in a certain sense, are gradually merging into the life of present-day societies. We can now look back on the succession of epochs as one synoptic scene that plays out according to an order in which we can seek to discover the logic of events. In doing so, we cease to live solely in the fleeting moment, and instead embrace the whole series of past ages recorded in the annals of history and discovered by archeologists. In this way, we manage to free ourselves from the strict line of development determined by the environment that we inhabit and by the specific lineage of our race. Before us lies the infinite network of parallel, diverging, and intersecting roads that other segments of humanity have followed. And throughout this series of epochs stretching out toward an indefinite horizon, we find examples that appeal to our spirit of imitation. Everywhere we see brothers toward whom we feel a growing spirit of solidarity. As our overview of history extends ever further into the past, we find an increasing number of models demanding understanding, including many that awaken in us the ambition to imitate some aspect of their ideal. As humanity became more mobile and modified itself in the most diverse ways, it lost a significant part of its achievements attained in the past. Today, we may ask whether it is possible to recover all of the baggage we have left at the various stations of our long voyage through the centuries.

Since men are henceforth masters of time and space, they see an infinite field of achievement and progress opening before them. However, burdened by the illogical and contradictory conditions of their surroundings, they are hardly in a position to proceed knowledgeably with the harmonious work of improvement for all. This is understandable. All initiative comes from individuals and insignificant minorities, and these isolated persons or small groups attend to the most urgent needs first, directly attacking whatever evil they find before them. So if their efforts have the advantage of emerging simultaneously on almost all fronts, by the same token, they lack coherent strategy. But theoretically, when one detaches oneself intellectually from the chaos of conflicting interests, it is easy to see immediately that the true and fundamental conquest, from which all others can logically be derived, is that of procuring bread for all men—for all who call themselves "brothers," even though they are very far from being so. When all have enough to eat, all will feel that they are equal. Now this is precisely the ideal that many a small tribe far from our great pathways of civilization already knew how to realize, and we must come to terms with this ideal of solidarity as soon as possible if all of our hopes for progress are not to become the most cruel of ironies. Montaigne has described the opinion on this subject held by the Brazilian natives who were brought to Rouen in 1557 "at the time that the late King Charles the Ninth was there." They were struck by many strange things and above all by the fact "that there were among us men full and crammed with all sorts of good things, [for] which their halves [fellow countrymen] were begging at their doors, emaciated with hunger and poverty; and they thought it strange that these necessitous halves were able to suffer such an injustice, and that they did not take the other by the throat or set fire to their houses." For his part, Montaigne greatly pitied these savages from Brazil for "allowing themselves [to] be deluded with desire of novelty and to leave the serenity of their sky to come

and gaze at ours!" They were "unaware ... that from this intercourse will be born their ruin." Indeed, these Tupinambá from the American coast have left not a single descendent. All of the tribes were exterminated, and if there still remains a little blood of these indigenous people, it is mixed with that of some despised proletarians.

The conquest of bread, which true progress requires, must be an actual conquest. It is not simply a question of eating, but of eating the bread that is due by human right rather than owing to the charity of a great lord or wealthy monastery. The unfortunate people who beg at the doors of the barracks and churches number in the hundreds of thousands, perhaps in the millions. Thanks to the vouchers for bread and soup distributed by charity, they barely manage to get by; however, it is very unlikely that the aid provided for all these needy people has had the slightest significance in the history of civilization. The very fact that they have been fed without having asserted their right to food, and perhaps even required to express their gratitude, proves that they consider themselves to be simply the dregs of society. Free men look each other in the eye, and the first condition of their forthright equality is that individuals be absolutely independent of one another, and that they earn their bread through a mutuality of services. Entire populations have been reduced to moral ruin through a gratuitous material existence. When Roman citizens lived in a state of abundance and did not have to work for the food and entertainment provided by the masters of the state, did they not stop defending the empire? A number of classes, among them that of the "deserving poor," prove completely useless in relation to progress as a result of the system of alms, and some cities have fallen into irreversible decay because they contain an idle multitude that, having no need to work for itself, also refuses to work for others. This is the real reason that so many cities and even nations are "dead." Charity brings with it a curse on those it nourishes. This can be witnessed in the Christmas celebrations of the aristocracy, in which young heirs to vast fortunes, draped in luxurious clothes, practice their noble gestures and gracious smiles. And then, under the loving eyes of their mothers and governesses, they nobly distribute presents to the poor of the streets, who are dutifully washed and dressed in their Sunday best for the occasion. Is there a spectacle sadder than that of these young unfortunates, stupefied by the glory of gold in all its munificence?

Down with this ugly Christian charity! The cause of progress is entrusted to the conquerors of bread—in other words, to the working people who are united, free, equal, and released from the bonds of patronage. It will be up to them to finally use scientific method in applying each discovery to the interests of society, and to realize Condorcet's assertion that "Nature has placed no limit on our hopes." For, as another historian and sociologist said, "The more one asks of human nature, the more it gives. Its faculties are stimulated by effort, and its power seems unlimited." As soon as man is firmly confident of the principles according to which he directs his actions, life becomes easy. Fully aware of his due, he accordingly recognizes that of his neighbor. In doing so, he brushes aside the functions usurped by the legislature, the police, and the executioner; thanks to his own ethic, he abolishes law (Emile Acollas). Self-conscious progress is not a normal function of society, a process of growth analogous to that of a plant or animal. It does not open like a flower; instead, it must be understood as a collective act of social will that attains consciousness of the unified interests of humanity and satisfies them successively and methodically. And this will

becomes ever stronger as it surrounds itself with new achievements. Once accepted by all, certain ideas become indisputable.

The essence of human progress consists of the discovery of the totality of interests and wills common to all peoples; it is identical to solidarity. First of all, it is necessary to address the economy, which is very different from that of primitive nature, in which the seeds of life pour out with astonishing abundance. At present, society is still very far from achieving the wise use of forces, especially human forces. It is true that violent death is no longer the rule as in former times. Nevertheless, the vast majority of people die before their time. Disease, accidents, injuries, and defects of all kinds, most often complicated by medical treatments applied wrongly or randomly and exacerbated above all by poverty, the lack of essential care, and the absence of hope and cheer, cause decrepitude long before the normal onset of old age. Indeed, an eminent physiologist has written a wonderful book whose principal thesis is that almost all old people die before their time and with an absolute dread of death, which would instead arrive like sleep if it were to come at a time when a man, happy to have led a good life full of activity and love, felt the need for rest.

This uneconomical use of forces is demonstrated above all in great changes, such as violent revolutions and the introduction of new processes. Old equipment, as well as men who are accustomed to a previous form of labor, are discarded as useless; however, the ideal is to know how to utilize everything, to employ refuse, waste, and slag, for everything is useful in the hands of one who knows how to work with the materials. Generally speaking, all modification, no matter how important, is accomplished through a combination of progress and a corresponding regression. A new organism is established at the expense of the old. Even when the vicissitudes of conflict are not followed by destruction and ruin in the strictest sense, they are nevertheless a cause of local decline. The prosperity of some brings the downfall of others, thus confirming the ancient allegory that depicts Fortune as a wheel, lifting up some while crushing others. The same fact can be evaluated in many ways: on the one hand as a great moral advance, and on the other as evidence of decay. From a great, fundamental event such as the abolition of slavery, disastrous consequences can ensue due to the thousand blows and counterblows of life, contrasting with the totality of fortunate results. The slave, and generally speaking even the man whose life has been regulated from infancy and who has never learned to distinguish clearly between two successive and very distinct states of his milieu, easily becomes accustomed to the unchanging routine of existence, as mundane as it may be. He can live without complaining, like a stone, or like a plant hibernating under the snow. As a result of this habituation, during which thought slumbers, it often happens that the man who is suddenly liberated from some form of servitude does not know how to accommodate himself to his new situation. Not having learned how to exercise his will, he stares like an ox at the stick that once goaded him to work. He awaits the bread that had always been thrown to him and that he was accustomed to picking up from the mud. The qualities of slavery, obedience and resignation—as far as one can call them “qualities”—are not the same as those of the free man: initiative, courage, and indomitable perseverance. The person who retains even vaguely the first qualities, who allows himself to miss his former life ruled by the carrot and the stick, will never be the proud hero of his destiny.

On the other hand, the man who has cheerfully accommodated himself to the conditions of a new life of perfect independence, a life that gives to the agent full responsibility for his conduct, is in danger of unimaginable suffering when he finds himself caught again in a vestige of ancient slavery—the military, for example. His life then becomes unbearable, and suicide seems like a refuge. Thus in our incoherent society, in which two opposing principles struggle against one another, it is possible to desire death either because it is too difficult to conquer life or because liberty has so many joys that one cannot give them up. Is it not contradictory that the reaction to a greater intensity in life can be an extraordinary increase in bouts of despair and an obsessive fear of death? The number of suicides has continually increased for several decades in contemporary society and in all so-called civilized countries. Not long ago, this type of death was rare in all lands and completely unknown among certain peoples such as the Greeks, for whom, moreover, poverty, temperance, and harsh work were the rule. But the great whirlwind generated by the cities has produced a corresponding torrent of passions, emotions, changing impressions, ambitions, and insanity in our modern "Babylons." Since life is more active and passionate, it is frequently complicated with crises and often ends abruptly through voluntary death.

This is the very sorrowful aspect of our much-acclaimed half-civilization (it is only half-civilized because it is far from benefiting everyone). The average man of our time is not only more active and lively but also happier than in previous times when humanity, divided into innumerable tribes, had not yet become conscious of itself as a whole; however, it is no less true that the moral discrepancy between the way of life of the privileged and that of the outcasts has increased. The unfortunate have become more unfortunate, and envy and hatred are added to their poverty, increasing their physical suffering and forced deprivation. In primitive clans, the victims of starvation and sickness are subject only to physical pain. But among our civilized people, they must also bear the burden of humiliation and even public loathing. Their living conditions and clothing make them seem sordid and repugnant to the observer. Are there not neighborhoods in every large city that are carefully avoided by travelers because of an aversion to the nauseating odors that emanate from them? Except for the Eskimos in their winter igloo, no savage tribe inhabits such hovels as exist in Glasgow, Dundee, Rouen, Lille, and so many other industrial cities, where in cellars with slimy walls, beings that resemble humans drag themselves about painfully for a time in a semblance of life. The barbaric Hindus who live in the forests at the center of the subcontinent, clothed in a few colorful rags, offer a relatively cheerful sight compared to these emaciated proletarians of luxurious Europe, somber, sad, and gloomy in their tattered, filthy clothes. For the observer who is not afraid to go near the factories when they let out, the most striking thing, aside from the clothing of poverty, is the absolute absence of personality. All these beings rushing toward an inadequate meal have had since youth the same withered face and the same vacant, deadened stare. It is impossible to distinguish among them any more clearly than among sheep in a flock. They are not humans, but rather arms, or "hands," as they are so appropriately called in the English language.

This horrible discrepancy, this most dreadful scourge of contemporary society, could be corrected rapidly by scientific method through the redistribution of the goods of the earth, since the resources necessary for all humans are in superabundance. This goes without saying. Humanity is admirably equipped through its progress in the knowledge of time and space, of the innermost nature of

things, and of man himself. But is it currently advanced enough to tackle the fundamental problem of its existence, which is the problem of the realization of its collective ideal, not only for the "ruling classes," one caste, or a group of castes, but for all whom a religion once described as "brothers created in the image of God"? Of course, humanity can reach this goal. There will no longer be a question of hunger the day that people who are starving join together to claim their due.

Similarly, the question of education will be resolved, since the problem is acknowledged in principle and because the desire for knowledge is widespread, even if it is only in the form of curiosity. Now one advancement never comes alone; it has a complementary and reciprocal relationship with other advancements in the entirety of social evolution. As soon as the sense of justice is satisfied through the participation of all in the material and intellectual resources of humanity, each man will as a result experience a great unburdening of his conscience. For the present cruel state of inequality, in which some are overloaded with superfluous wealth while others are deprived even of hope, weighs like a bad conscience on the human soul, whether one is aware of it or not. It weighs most on the souls of the fortunate, whose joys are always poisoned by it. The greatest step toward peace would be for no one to do wrong to his neighbor, for it is in our nature to hate those whom we have wronged and to love those whose presence recalls our own worth. The moral consequences of the very simple act of justice in which bread and education are guaranteed to all would be incalculable.

If, continuing the present direction of historical evolution, humanity soon reaches the goals of abolishing death from hunger and stagnation from ignorance, then another ideal will appear like a shining beacon—an ideal that moreover is already being pursued by an ever-growing number of individuals. This is the lofty ambition to regain all lost energies, to prevent the loss of present forces and materials, and also to recover from the past everything that our ancestors allowed to slip away. Generally speaking, this would mean that civilizations would imitate the engineers of our day who are discovering treasures in the debris that was considered worthless by the Athenian miners of the past. If it is true that in certain respects some primitives and ancients surpassed the average modernday man in strength, agility, health, and beauty, then we must become their equals! Granted, this reconquest will not go so far as the recovery of the use of atrophied organs whose former purposes have been discovered by biologists (such as Elie Metchnikoff); however, it is important to know how to maintain fully those energies that are still accorded to us and to retain the use of muscles that, while continuing to function, have become less flexible and are in danger of soon becoming worthless to our bodies. Is it possible to prevent this physical diminishment of man, who is thrown out of balance by the development of his mental capacities? It is predicted that man will gradually turn into an enormous brain, wrapped in bandages to protect him from colds, and that the rest of his body will atrophy. Is there anything we can do to resist this tendency? Zoologists tell us that man used to be a climbing animal, like the monkey. Why, then, does modern man let himself forfeit this skill of climbing, which certain primitives still possess to a remarkable degree, notably those who climb to the tops of palm trees to gather bunches of fruit? As mothers never fail to observe admiringly, infants have astonishing grasping power, with which they can suspend their bodies, even for minutes at a time, yet they gradually lose this initial strength because great care is taken to deny them the opportunity to exercise it. The threat of clothing being ripped

and torn through the child's efforts to climb are enough for the parents of our economically-minded society to forbid their offspring to climb trees. The fear of danger is only a secondary consideration in this prohibition.

As a result of such fears, most "civilized" children remain greatly inferior to the sons of savages in games of strength and agility. Furthermore, since they have had little opportunity to exercise their senses outdoors, they do not have the same clarity of vision or keenness of hearing. Compared to the animals of beautiful form and sharpened senses that Herbert Spencer thought they should be, they seem for the most part to have clearly degenerated. In no way do they merit the words of admiration evoked in European travelers by the sight of the young men of Tenimber, practicing stringing their bows or throwing the javelin. The players of pelote, golf, and lacrosse constitute the elite of civilized people for physical beauty. But the spectators would have difficulty finding perfectly balanced forms to rhapsodize over, even among the champions. The evidence is clear. It is certain that in purity of line, dignity of bearing, and gracefulness of movement, a number of Negro, American Indian, Malayan, and Polynesian tribes surpass randomly selected groups representing the average type of the nations of Europe, though perhaps not certain exceptional cases among Europeans. Thus, from this perspective there has been a general regression because of our confinement to our homes and our absurd clothing, which interferes with perspiration, the effect of air and light on the skin, and the free development of muscles, which are often constricted, tortured, or even crippled by laced boots and corsets. Nevertheless, numerous examples prove that this regression is not final and irrevocable, since our young people who have been raised in good hygienic conditions and who engage in physical exercise develop in shape and strength like the most beautiful of savages. Besides, they have been granted the superiority of self-awareness and the distinction of intellect. Thanks to the achievements of the past, which moderns acquire rapidly and methodically through education, they succeed in living longer than the savage since they know how to compress into their lives a thousand prior existences and to recall survivals from the past in order to make a logical and beautiful whole out of current practices and the innovations of previous times. If only we could gauge the degree of strength that the modern can attain by using as an example today's skilled mountain climbers of the Alps, the Caucasus, the Rocky Mountains, the Andes, the Tien Shan, and the Himalayas! Certainly, a Jacques Balmat would not have climbed Mont Blanc if a de Saussure had not existed to train him in this undertaking. Today, such experts as Whymper, Freshfield, and Conway are in strength, endurance, knowledge, and the practice of mountain climbing the equals and even the superiors of the most dependable mountain guides, who were trained from youth in all the physical and moral qualities necessary for dangerous ascents. It is the man of science who is now followed by the native to the summit of Kilimanjaro or of the Aconcagua, and it is he who leads the Eskimos to the conquest of the North Pole. Thus it is possible for modern man to realize perfectly his imagined ideal, that of being able to acquire new qualities without losing, or even while regaining, those possessed by his ancestors. This is not at all a chimera.

This strength of understanding, this increased capacity of modern man, permits him to reconquer the past from the savage in his natural, ancient environment, and then to unite it and blend it harmoniously with his own more refined ideas. But all of this increase in strength will result in a

permanent, well-established reconquest only on the condition that the new man include all other men, his brothers, in the same feeling of unity with all things.

Here, then, is the social question that is posed anew in its full scope. It is impossible to love wholeheartedly the primitive savage in his natural environment of forests and streams if at the same time one does not love the men living in the more or less artificial society of the contemporary world. How can we admire and love the small, charming individuality of the flower, or feel brother to the animals and approach them as St. Francis of Assisi did if we do not also see our fellow men as beloved companions? The alternative is to avoid them in the name of love so as to escape the moral wounds inflicted by the hateful, the hypocrites, or the indifferent. The complete union of the civilized with the savage and with nature can take place only through the destruction of the boundaries between castes, as well as between peoples. Each individual must be able to address any of his peers in complete brotherhood, and to speak freely with them "about all that is human," as Terence said, without succumbing to the customs and conventions of the past. Life, restored to its original simplicity, thus entails a complete and amicable freedom of human social intercourse.

Has humanity made any real progress along this road? It would be absurd to deny it. What is called the "tide of democracy" is nothing other than the growing feeling of equality among the members of different castes that were recently enemies. Under a thousand changing surface appearances, the work is carried out in the depths, in all nations, thanks to man's growing knowledge of himself and of others. Increasingly he succeeds in finding the common basis for our likeness to one another and manages to extricate himself from the entanglement of superficial opinions that have kept us separated. We march, then, toward future conciliation, toward a form of happiness far more ample than that which satisfied our ancestors, the animals and the primitives. Our physical and moral world has grown larger at the same time that our conception of happiness has become broader. Indeed, in the future, happiness will be considered as such only if it is shared by all, if it is made conscious and is well thought out, and if it includes within itself the fascinating pursuits of science and the joys of antique beauty.

All of this removes us noticeably from the theory of the "Superman" as understood by the aristocrats of thought. The kings and the powerful readily imagine that there are two systems of morals—theirs, which consists of capriciousness; and obedience, which is suitable for the masses. Similarly, arrogant young people who worship the intellectual powers they think they possess, indulgently place themselves on a high terrace of the ivory tower, beyond the reach of humble mortals. They condescend to chat only with a select few. Perhaps they even believe themselves to be alone. Genius weighs heavily upon them. Underneath their inevitably furrowed brows, a turbulent world rages. They are oblivious to the teeming, formless mass of the unknown multitude far beneath the flight of their thought. It is true that man can discover no limits that he cannot surpass through his striving to study and learn. Yes, he must try to realize his own ideal, to seek to surpass it, and to climb ever higher. Even as a dying man, I believe in my personal progress; those who feel as if they are moribund might as well die. But in order to surpass his limits, man does not need to break the bonds that connect him with the beings around him, for he cannot escape the close solidarity that supports his life through the lives of his fellow creatures. To the contrary, each of his personal advancements means progress for those around him: he shares his knowledge as he

shares his bread, and he does not leave behind the poor and the crippled. He has had teachers—since he was hardly born without a father like some god in a fable—and he will in turn teach those who come after him.

The barbarous methods of the Spartans are still favored by those ineffectual persons who know neither how to heal nor how to teach. They smother those who seem weak and throw the malformed into a hole, breaking their bones. Such are the summary practices of the ineffectual and the ignorant. And what doctor, midwife, or infallible arbitrator will tell us which newborn can be spared and which is beyond hope? Often, the science practiced by these judges has been faulty. A particular body that they had deemed ill-suited for life actually turned out to be admirably adapted to it. A particular intelligence that from the heights of their judicial bench they had classified as moronic developed brilliant and creative powers. Being old, slaves to routine, and misoneistes, they were completely wrong, and it is through revolution against them that the world was ennobled and renewed. The best approach is to accept all men as equals in potential and in dignity, to help the weak by supporting them with one's own strength, to help restore health to the sick, and to open the minds of the unintelligent to elevated thoughts, all with constant concern for the betterment of others and of oneself. For we are part of a whole, and evolution takes place throughout the world, whether it moves from progress to progress or from regression to regression.

Thus happiness, as we understand it, does not consist simply of personal enjoyment. Of course it is individual in the sense that "each is the artisan of his own happiness," but it is true, deep, and complete only when it extends to the whole of humanity. It is not possible to avoid sorrow, accidents, sickness, or even death; however, by joining together with others in an undertaking whose significance he grasps, and by following a method that he knows to be effective, man can be certain of directing the whole great human body toward the greatest good. In comparison to this body, each individual cell is infinitely small, a millionth of a millionth, counting the present population of the earth and all previous generations. Happiness does not mean the attainment of a certain level of personal or collective existence. It is rather the consciousness of marching toward a well-defined goal to which one aspires and that one creates in part through one's own will. To develop the continents, the seas, and the atmosphere that surrounds us; to "cultivate our garden" on earth; to re arrange and regulate the environment in order to promote each individual plant, animal, and human life; to become fully conscious of our human solidarity, forming one body with the planet itself; and to take a sweeping view of our origins, our present, our immediate goal, and our distant ideal—this is what progress means.

Thus we can with complete confidence respond to the question that arises in the depths of each man's being: yes, we have progressed since the time when our ancestors left their maternal caves, during the several thousand years that make up the brief self-conscious period of human life.

Predicting the Future from the Past – Richard Carrier (Social Democracy not anarchist)

However, Singularity fans are right about two things: machines will outthink humans (and be designing better versions of themselves than we ever could) within fifty to a hundred years (this was written in 2009) (if advocates predict this will happen sooner, then they are being unrealistic),

and the pace of technological advancement will accelerate. However, this is already accounted for by existing models of technological advancement, e.g. Moore's Law holds that computers double in processing power every three years, Haik's Law holds that LED's double in efficiency every three years, and so on (similar laws probably hold for other technologies, these are just two that have been proven so far). Thus, that technological progress accelerates is already predicted. The Singularity simply describes one way this pace will be maintained: by the recruitment of AI.

It therefore doesn't predict anything remarkable, and certainly doesn't deserve such a pretentious name.

Shane said... You can soften [your claim] to some lesser degree and it becomes a probability calculation of how likely some given technology is

Tosh. Give me any length of time (at least five hundred years from the current start date) and follow the overwhelming probabilities (i.e. no significant catastrophes), and the predictions are solid:

Supercapacitors: ~100%.

True AI: ~100%.

Cyclotron-manufactured basic elements: ~100%.

Solar-thermal desalination: ~100%.

Clean algal fuels: ~100%.

Genetically engineered people: ~100%.

Immortality: ~100%

Synthetic mind transfer to simverses: ~100%

Faster-than-light travel: ~0%

And so on.

We have more than enough information to make these predictions, especially given the stated conditions. It is simply folly to cover your eyes and claim we don't already have ample data for this.

...technology, by its very nature, is impossible to predict

No, it is not. It is difficult to predict, but not impossible. Though some things (by being presently unimagined) will not be predicted, others are entirely predictable.

Though people often focus on the failures of past futurists, they ignore all the successful predictions they also made. Yet most of them were not working from scientific models, like the current progression laws in computation and diode efficiency, and did not have the knowledge we have now, e.g. regarding the widespread game-changing social impact of increasing efficiencies in the information economy, miniaturization, specialized AI, spacefaring, etc.

It is also easier to predict near-term developments (like the impact of supercapacitors) and get their timelines reasonably correct (based on past timelines of similar innovations in the present industrial economy, from development to dissemination, e.g. the history of the solar panel, the computer, and the jet turbine all provide models), as well as long-term end-point developments (replacement of natural selection with genetic engineering in human reproduction, simverses, space colonization), as long as you forego attempting precise timelines, since the relevant technologies already exist and need merely be economized, and the past teaches us the ubiquity and timescales of economization in all technologies.

Simply extrapolating forward may be realistic, but it's by no means a guarantee of anything.

That's exactly what I said: timescales are more variable, and small improbabilities can intervene, and every technology will have an end-point limit, and often we can only talk probabilities, etc. But if you allow large timescales, or track smaller developments on shorter scales, and in either case stick to highly probable outcomes (e.g. by excluding improbable catastrophes), some extrapolations forward are guarantees. What can defy our predictions are not the failure of the predicted developments to transpire (the past teaches us we will almost always be right about those), but the effect of unforeseen technological advances (i.e. yet more progress than even we dreamed of).

For example, the full impact of the rise of the internet was largely unpredicted and has changed the game from what past futurists projected, and yet if you take that into account, their predictions were actually far less inaccurate than is supposed: they just didn't foresee the integration of what they did predict, with what they hadn't foreseen would also be invented.

Another common mistake, as I already noted in my blog, is to foreshorten the timescales for developments. Hence you get a film like 2010 in which the size and portability of computers falls far short of the actual pace of advance (in the film they are comically large and clunky compared to actual computers and devices of the year 2010, just as their projected monitor technology fell humorously short of actual), but at the same time predicted the development of true AI by now, even though all realistic, informed projections do not anticipate that being even possible before 2030. But errors in timescale are not errors in inevitability. There will be true AI. It's just a question of when.

Yet another common mistake is simply failing to consider practical realities that should have been known even in the futurist's day, and thus aren't a failure of technological prediction, but of political or economic prediction. Flying cars will never happen not because the technology won't be there, but because their safety can never be secured to any degree that would satisfy political opposition to their employment (beyond specialized use--and in fact we have those: we call them helicopters), and because they will never be able to compete with ground vehicles in efficiency (for obvious reasons, more energy will always be needed to keep a car aloft than to roll it along the ground, hence ground vehicles will always out-compete aerial ones in cost effectiveness no matter how efficient the latter get, except, again, when flying machines can do what ground cars can't, hence the uses we see make of the modern helicopter).

But if you are aware of these errors, you can avoid or compensate for them, and even with them, predictions are most often only in some degree inaccurate, not outright incorrect (e.g. we do have flying cars, we just call them helicopters).

I don't see how it is inevitable that we are going to reach any pinnacle of technology. We may get to a technological dead-end where we used up all the technologically accessible resources necessary to reach some further step.

If you are saying the potential for technological advance is unlimited, I have no objection to that in general. Or if you mean there will be, e.g., quantum mechanical limits to development in various specific areas, I already said exactly that--but those limits are vastly far away. So the room for intervening development is almost beyond conception, and therefore those limits are largely moot to any realistic futurism.

If you mean we're close to some general technological dead-end, all past history, involving thousands of examples, and present in-progress developments, affording thousands more examples (e.g. home fabrication units, algal fuel production, supercapacitors), are uniformly against you.

Indeed, when you combine threads, you get exponential advances: compact nuclear power (as is housed now in submarines) + standard desalinator = unlimited fresh water (that whole process is already standard on nuclear submarines, and can be scaled up to serve a nation if we had the need and the will); solar power + cyclotron + space station + computerized fabrication = unlimited conversion of all solid and liquid waste into raw elements like gold or hydrogen or diamond, anything you want—again, all it requires is the scaling-up of already-existing technologies.

Human will might stand in the way. But ability does not.

Generally people over-exaggerate the ineffectiveness of serious futurist prediction making in technology (confusing comical predictions with serious ones, or relying on urban legends about what was or wasn't predicted, rather than actually checking the literature and pop culture). What predictions we get wrong are technologies we don't think of, not the technologies we already are thinking of, and can see possible (like AI or moon landings); and some of the impacts of technologies (e.g. Twain imagined the internet, but not all its effects on global culture) because it's hard to predict not the technology itself, but how people will use it (thus, space hotels was a failure to predict how people would spend their money, not a failure in predicting the technology itself).

It's important to keep these nuances in mind before cavalierly dismissing tech predictions…which tend to come true a lot more often than legend has it (even Aristotle predicted industrial robotics…he just didn't imagine a timeline for it). Indeed, traditionally, people under-predict the pace of technological development. Look at the computers imagined for the year 2010 in the movie 2010, filmed in 1984…AI aside, they are way too bulky, and screen and interface technology way too poor; contrast with Star Trek TNG, which began just three years later, and already fully imagined the ipad and high-resolution touch-screen configurable interface. They thought that would take hundreds of years. It took barely twenty.